

# **Evaluating E-Government Implementation in Public Service Delivery**

By

**KENENISSA KEBEDE, Desta**

**THESIS**

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

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Committee in charge:

Professor Yoon Cheong CHO, Supervisor



Professor Soon Hee KIM



Professor Tae Jun LEE



Approval as of December, 2017

## **Declaration**

This thesis work denotes my own work, except where appropriate citation is made. I can say the content of this thesis is not included in whole or in part in any local or international journals or academic reports.

**Name :** \_\_\_\_\_ **Signature :** \_\_\_\_\_

**Date :** \_\_\_\_\_

## **ACKNOWLEDGEMENTS**

First of all, I would like praises to the almighty God who has answered all my prayers and keep me safe. "O! God thank you."

I am greatly express my dearest gratitude to my Supervisor Cho Yoon Cheong (Prof) for her commitment, constructive advice, helpful suggestions and guidance she rendered me.

I would also like to extend my heart-felt gratitude to my beloved wife Tihitina Million for her contribution to make me successful in my study.

Thanks, are also to my ARS advisor Youngjae Lim (Prof) for his commitment in following my Thesis throughout the semester.

I wish also to thank all my friends who shared their experience so generously.

## **Abstract**

The purpose of this study is to assess e-government implementation in public service delivery and to examine stakeholders/customers trust on e-government service. This study applied Technology Acceptance Model (TAM) to investigate factors affect e-government implementation.

The results indicate that factors ICT infrastructure, human capital, online service, risks and barriers are significantly affected ease of use and usefulness of e-government services.

Specifically, I investigate two major issues in my research – (1) the intention to improve e-government service by selected organizations (2) service provider perception on stakeholder/customer trust on e-government service provided.

This study also find that the intention to improve e-government service is better in all selected organizations. Whereas perceived stakeholders/customer trust level in e-government service is similar in all selected organizations which is insignificant.

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# **I. INTRODUCTION**

## **1.1 Background of the Study**

E-government defined as the providing of information and services to stakeholders/customers by using internet technology and World-Wide-Web by government (UN/ASPA, 2002).

Grant and Chau (2005) defined e-government as, “A broad-based transformational initiative enabled by leveraging the capabilities of information and communication technology;(1) to develop and deliver high quality, seamless, and integrated public services; (2) to enable effective constituent relationship management; and (3) to support the economic and social development goals of citizens, businesses, and civil society at local, state, national, and international levels.”According to World Bank definition, government organizations usage of e-government or online technology that have the capacity to improvecommunications with citizens, private sectors and other subordinates of government organizations (World Bank, 2003).

The major idea of e-government is that providing information easily and in a better way to people and government offices also to government itself (Fang, 2002). By using Internet capable tools and through telephone connection we can communicate anywhere in the world to anyone by putting the web based as a means of online communication, it means that it is possible to access to government 365 days a year (Teicher, Hughes,& Dow, 2002). By avoiding difficulty to deal with frontline staff government can be available when the user requires this means that they can access government services quickly(Fang, 2002).The major outcome of e-government technologies are providing service in effective and efficient way in government organizations to citizens in improving communications with all sectors and enabling citizen through access to online information(World Bank, 2003).



Understandings and applications of e-government have different meanings which include internal and external government communications, modifications to service delivery, changing ideas of democracy and wider administrative improvement and citizenship (Otubu, 2009). The use of modern technologies for distributing one-way information is the early understanding of e-government service delivery concept (Silcock, 2001). To enable two-way government-citizen communication as recent research places better emphasis should be given on the importance of e-government services (Norris, 2005 & Homburg, 2008). Government has to use e-government services to build better and more efficient administration (Commission of European Communities, 2003).

The main idea of e-government is usage of information technology products by all citizens and private sector to provide services, products and to deliver information and complete financial operation (Fang, 2002). For convenient service, electronic services are widely used for interactive information flow in the transaction process (Santos, 2003). The major difference of e-service delivery from traditional service delivery are due to the two-way communication of information flow between service providers and customers (Li & Suomi, 2007). According to Van Der Molen and Wubbe (2007), the basic idea of e-government is the use of online technology to enhance services given by government organizations, this become an issue in all fields of government and non-government offices those provide services. The use of e-government services can be defined as government deploying and implementing online technology to delivery services to public and among different governmental agencies (Otubu, 2009). Using of e-government services in the government organizations provides that the chance to do tasks in another way but technology might not have the capacity to change wrong way of doing into good ones but one of the importance of

e-government it can be used as a tool to improve and develop public policies (Commission of European Communities, 2003).

## **1.2 Statement of the Problem**

For government to deliver information and services in timely manner e-government is used to facilitate and improve the activities it also helps government to interact with citizens and to deliver services (Fang, 2002). Public service delivery will be carried out through customized approach and transformed process to create a successful transformation (Jehan&Nishantha, 2009). The Government of Ethiopia has a national strategy and policy to develop information communication technology and to deliver transparent and better services to citizen similar to other countries (<http://www.mcit.gov.et>). Through information technology government must interact with the people effectively and gives services literally to the doorsteps of the citizens. Information technology should ensure honesty and accessibility to the citizens (Jehan&Nishantha, 2009).

To provide services to citizens and to connecting people Ethiopia government has set-up e-services such as Data center, web portal and web site service as part of e-government scheme. Connecting citizens were hardly concern and doorsteps services were totally ignoring and termed as c-service, prior to entering into the e-government in some government offices even if public services had delivered through the conventional way (Fang, 2002). Existence of bureaucratic style of governance, shortage of power supply and lack of IT skilled manpower causes the e-service centers to face challenge to deliver the public services in an efficient manner. According to Gauld et al. (2010) governments around the world are concerned to encourage stakeholders/customers interaction because of the accessibility and affordability of internet technology.

Accordingly, to achieve the desired objectives the e-service centers are in sufficient for creating close coordination between the various government agencies or business groups or citizens (Fang, 2002). The researcher believes that such drawbacks in providing public services require greater holistic e-government services development that benefit stakeholders/customers. Due to this situation providing good public service delivery is difficult for a government. This research study is used for evaluating e-government implementation in public service delivery.

### **1.3 Research Aim and Objectives**

The aim of this study is to assess and analyze e-government implementation in public service delivery and to recommend good practice procedures for successful e-government implementation within the context of Ethiopia.

The main objectives of this research according to the above aim are:

#### **General Objective: -**

To assess and analyze stakeholders/customer trust on the implementation of e-government service practices in public service delivery in the case of some selected Federal Ministry office of Ethiopia.

#### **Specific Objectives**

- I. To survey the factors (ICT infrastructure, Human Capital, online communication services) – external and internal - inducing e-government implementation in public service delivery.
- II. To identify the drivers, limitations and risk inherent in the process of e-government implementation.
- III. To recognize the importance of e-government on public service delivery.
- IV. To assess the status of current e-government practice.

## **1.4 Research Questions**

With the attempt to identify and establish connections between e-government and public service delivery, the study is primarily concerned with e-government implementation to provide public services delivery. Therefore, the research study can be conducted with the following research questions:

1. What are the major factors influencing e-government implementation in public sector in the context of Ethiopia for sustainable and generally acceptable public service Delivery?
2. How do these factors (ICT infrastructure, Human Capital, online communication services, barriers and risks) influence e-government implementation process?
3. What is the status of e-government services implementation in public service delivery?
4. How much responsive is the existing e-Government services?

## **1.5 Significance of the Study**

Nowadays, to improve quality and provide better and faster customer service due to continuous movement towards globalization has made e-government one of the most important factors in achieving success as well as in seeking new markets.

The major contributions of this thesis work to the field of e-government is that: - Firstly this study will be identifying major problems that exist in e-government service implementation in public service delivery. Secondly this research informs the current e-government service implementation in public service delivery in Ethiopia. In addition, the research will assess stakeholder/customer trust on e-government service delivered by government. Moreover, it addresses all challenges that might affect e-government services implementation in public service delivery and supports other research results with regard to implementation of e-government and public service delivery.

Nowadays, there are strong competitions among organizations which serve the customers.

Therefore, in order to satisfy customer needs organizations should use e-government not only applying information technologies through the organizational levels to improve the performance quality.

Pertaining to the implementation of e-government services in public service delivery the studies conducted so far were focused on assessing development of Information technology on country development.

It seems that little attention has been given, by our researchers, to a general belief that e-government are critical for Public service delivery and for further economic development.

So, it is, therefore, assumed that the result of this study: -

This study will identify major problems that exist in e-government implementation in public service delivery.

1. This study will inform current e-government implementation status in public service delivery.
2. The researcher believes that this study can add new knowledge to the existing inadequate literature pertinent to this field.
3. The strengths exhibited by selected offices can help other offices to share experience.

### **1.6 Scope of the Study**

It would have been better to conduct this study in a wider scale covering large number of governmental and other similar non-governmental offices. Nevertheless, due to constraints (time and resource) the coverage of this study will be confined to a limited to some selected government ministry offices. Moreover, this study is confined to the evaluation of e-government implementations in public service delivery. A reasonable number of IT managers

and e-government experts or information communication technology officers will be participated.

## **II.LITERATURE REVIEW**

### **2.1 Definition of e-government**

The definition adopted by Asian Development Bank (2001), mentioned that to allow better stakeholder/customer access to information which is provided by government and to make government more responsible to citizen's government should use information and communications technology which is e-government to enable cost-effective, more efficient and to facilitate more suitable government services. According to Curtin, Sommer and Vis-Sommer (2003), to improve operations like the access of information and services to public, citizen and public involvement, and the very process of governance governments and their agents should use any and all forms of information technology which is refers to the importance of e-government services. The using of existing online technology products for transforming internal and external relationships can be defined as e-government (World public sector report, 2003).

The main aim of e-government is the changing of relationship between service provider and the stakeholders/citizens but it is not about putting a few computers or developing a website for distributing information (Pardo, 2000). To offer better services among governmental bodies, citizens, business, employees internet or web-based network which is the major component of communication technology are used by several governments (Fang, 2002). E-government is possible "solution" to some government problems which is administrative problems like bureaucracy and lack of accountability (Tambouris&Wimmer, 2005). In reducing organizational layers and in re-engineering

business process in the sectors such as public administration area e-government technology has been used (Teicher, Hughes, & Dow, 2002).

## **2.2 Background of e-government Development in Ethiopia**

The national ICT policy of Ethiopia was prepared in 2009 with a vision “Every Ethiopian life is ICT assisted” and a mission statement “to develop, deploy and use information and communication technology to improve the livelihood of every Ethiopian, and optimize its contribution to the development of the country(<http://www.mcit.gov.et>)”. According to UN Report (2014), “From tracking of indicators of achievement and establishment of a national e-government leadership council the national strategy includes provisions for citizen-centric mechanisms for stakeholder involvement and implementation of 219 online services over a five-year period from 2011–2015”.

By implementing and utilizing of e - government systems it is possible to achieve the goal of information communication technology which is to modernize a stream line public sector management as a result an efficient and effective delivery of public services can be achieved (<http://www.mcit.gov.et>). The rank of Ethiopia in online service delivery is 152 which is one of the best performing LDCs compared to many wealthier countries even with European nations (UN Report, 2014). A composite index comprises the e-government index, Web Measure Index, the Telecommunication Infrastructure index, the Human Capital index and e-participation index (UN Report, 2005). The comparison among indexes is described below.

**Table 1: Comparison of Ethiopia with Africa, European and World Average indexes**

	<b>Ethiopia</b>	<b>African Average</b>	<b>European Average</b>	<b>World Average</b>
E-government index	0.2589	0.2661	0.6936	0.4712
Online service index	0.4567	0.2011	0.5695	0.3919
Infrastructure index	0.0266	0.1478	0.6678	0.3650
Human Capital index	0.2934	0.4492	0.8434	0.6566
E-participation index	0.2549	0.2190	0.5454	0.3947

**Source: United Nations E-government Database, united Nations E-government Development Database, 2014**

The above table shows that the Comparison of Ethiopia with Africa, European and World Average indexes. Ethiopia is in the position of medium stage when we compare with African, European and World average. Ethiopian Online Service Index is next to European average which is better than African and the world. In terms of Telecommunications infrastructure Ethiopia much less than the average of the world, Europe and Africa. In human capital index, it's as we see from table Ethiopia lags behind and this means that the country has low human capital capacity to implement e-government. As the table shows to implement new technology countries educational skills is the most important point. Shortly Ethiopian Human capital index is much less than Africa, Europe and the world average. Countries e-Participation Index and its utilization by stages are in better position.

### **2.3 Factors that affect e-government**

#### **2.3.1 Information Communication Technology Infrastructure**

Less deployment or installation of information communication technology infrastructure are the major problems for e-government implementation (Alshehri & Drew, 2010). Installing of proper Information Communication Technology infrastructure for e-government deployment is difficult in developing countries due to the digital divide (OECD,



2003). Internet networking requires new methods for distribution and communication of new services in order to share information appropriately (Ndou, 2004). According to World Bank indicators (2003), “the digital divide between richer countries and developing ones is large with high-income economies having 416 personal computers per 1,000 people and low-income economies only 6 per 1,000”. The major factor to e-government implementation is lack of infrastructure.

### **2.3.2 Human Capital**

According to Ndou (2004), the more likely customers will be tending to take and use e-government services when the more the level of human development. An important task in e-government implementation are leaders he/she should find the sources of struggle and create a procedure to treat them (Roadmap for E-government, 2002). Changing office work from traditional way of doing to computerized ones in the work place is a new phenomenon of e-government (Alshehri & Drew, 2010). According to Realin (2004), one of the major difficulties in e-government implementation is that majority of workers realize that the adoption of e-government as a risk to their working places or positions as a result they fear losing their jobs and position. Roadmap for E-government (2002) emphasized that, “to decrease the resistance to e-government systems employees have to understand the importance and significance of e-government and make sure that they won't endanger their jobs, but through retraining and skill developments, the employees can be reassigned new roles”.

Continuous Development of human capital through training is mandatory and important due to change progress and new information technology products (Alshehri & Drew, 2010). Basic stage for all governments to get full economic benefits of Information

Communication Technology depends on a process of human capital development which is training and learning skills (OECD R, 2003).

### **2.3.3 Online Service Communication**

As stated on OECD( 2003), to get benefit from e- government services one should have access to the Internet. Previous studies by Blau( 2002), mentioned that digital divide is refers to difference between people with regard to access to information technology and its products and those without. The serious barrier in e-government adoption is poor access of internet among the society(Feng, 2003).A system for effective delivery of public services through information and communication technologies is e-government (Evans & Yen, 2006).According to Barata and Cain (2001), they emphasize that use of online technology is to computerize and deliver services to citizen and to confirm transparency and accountability.

### **2.3.4 Risks**

The potential risksin e-government implementation can be seen Social / human, security, financial and legal risk. Even if others are possibleproblems for e-government implementation security risks are critical risks. In e-government adoption privacy and confidentiality are identified as critical risks (Layne & Lee, 2001). According to Seifert and Bonham (2003), they emphasis that in e-government implementation individual privacy should beconsidered seriously with an eye toward the protection.Theprotection of all information and systems in implementation of e-government against any expose to illegalaccess, or illegal changes ordestruction is security(Udo, 2001).

### **2.3.5 Barriers**

#### **2.3.5.1 Technical Barriers**

Major difficulties in adoption of e-government is that technological barriers which is lack of uniform standards and well-matched infrastructure among offices and government

organizations (Alshehri & Drew, 2010). Layne and Lee (2001) mentioned that the major obstacle in implementation of e-government is security. Seifert and Bonham (2003) emphasised that the development of e-government should consider the protection of individual privacy. According to Alshehri and Drew (2010), "critical barriers in implementation of e-government in citizen concern are privacy and security."

#### **2.3.5.2 Organizational Barriers**

Importance in e-government adoption procedure in order to improve effective e-government services collaboration and coordination between all partners is important (Cohen & Eimicke, 2002). Feng (2003) mentioned that technical issue is not the only barriers in the deployment of e-government but rather an organisational issue should be considered too. According to Alshehri and Drew (2010), "Organisational challenges include: lack of top management support, resistance to change to electronic ways, lack of inter-sector and inter-departmental collaboration, and lack of qualified personnel and training." The main powerful factor in developing any project or initiative are leadership, so it is essential for the deployment of e-government (McClure, 2001).

#### **2.3.5.3 Social Barriers**

Social obstacles or barriers can be referred to factors such as education, culture and income. In addition to education and level of income culture can be seen as the main barriers. In implementing e-government the main barriers at large than technical barriers towards implementation of online technologies is culture (Feng, 2003). Culture is a set of important norms, beliefs and values that can be shared by all group of a society (Sathe, 1983).

To accept and use new technology differences in culture and individual behavior plays important role (West, 2001). In modifying and implementing technical changes more planning is needed for culture since it not easily tangible (Weisinger & Trauth, 2003).

#### 2.3.5.4 Financial Barriers

The major obstacle in adoption of e-government technology in many countries are insufficient financial support for technology usage (Moon, 2002). In order to achieve the goals, it is essential to check the readiness of the existing and anticipated financial resources (Alshehri & Drew, 2010). According to Feng (2003), in deploying e-government implementation lack of budgetary sources for capital investment is major obstacle as the result the implementation of new technology is weak.

**Table 2: Summary of E-Government Barriers**

	<b>Barriers</b>	<b>Challenges</b>	<b>References</b>
<b>1</b>	<b>Technical Barriers</b>	Lack of shared standards	Alshehri & Drew, 2010
<b>2</b>	<b>Organizational Barriers</b>	Lack of collaboration and cooperation	Cohen & Eimicke, 2002
<b>3</b>	<b>Social Barriers</b>	Cultural differences	West, 2001
<b>4</b>	<b>Financial Barriers</b>	Lack of financial support	Moon, 2002 Feng, 2003

#### 2.4 Importance of E-government for Developing Countries

Developing countries are commonly accept information communication technology due to fast economic improvement, increase in productive capacity and improvement international competitiveness as a result information communication technology offers increased opportunities for economic development (Ndou, 2004). Information communication technology assumed to be the main empowering tool to identify the main barriers and challenges to enter to the international economy and for future development (Valentina, 2004). Countries that have significant ability in IT applications like many

developing countries feel to take some advantage of the new electronic channels which is delivering of government services(Bhatnagar, 2003).

E-government provide important potential and chance for developing countries through facilitating their leadership and by enhancing citizen trust or maximize the level of satisfaction (Ndou, 2004).Due to there is growth in business and public sector Ethiopian government gives more attention on information communication technology development. Countries 5-year information communication technology plan contributes a lot in the adoption of e-government by assigning huge amount of money in the information communication technology related works (<http://www.mcit.gov.et>).To run with the developed world, e-government initiative has become bridge for developing countries (Bhatnagar, 2003). The growth of the country economy contributes to information communication technology improvement in different sectors of the country. One of strategic priorities of Ethiopian Government is developing of information and communications technology(<http://www.mcit.gov.et>).

### **III. Theoretical Background**

#### **3.1 Theory of E-government and Trust in Government**

Tolbert and Mossberger (2006), suggested that“e-government has been proposed as a way to increase citizen trust in government and improve citizen evaluations of government” and that “e-government can increase process-based trust by improving interactions with citizens and perceptions of responsiveness”.Most stakeholders/customers of e-government services want to involve in communications with service provider that will keep safe and protect their personal data, since technology allows advanced collection and investigation of data (Belanger & Carter, 2008). An important role of e-government is improving stakeholders/customers trust and government transparency(Myong,Kwon&Seo, 2014).

Improving services like transparency and efficiency, increases the frequency of communications between citizens and government organizations and also improves perceptions of level of quality and satisfaction or trust in government services using e-government is a major topic (McNeal, Hale, & Dotterweic, 2008).

Colesca (2009), emphasizes that for public sector to shift to e-government services is more than a procedural or structural change, but it includes ethical scopes of public society communication in which democracy, belief and consensus are important as legal authority. Welch et al. (2004), emphasis about e-government services and confidence on service provider management and the relationships it has with internet use and citizen satisfaction. Horsburgh et al (2011), they used to analyze three types of trust to show the role of trust in e-government services, by taking telephone surveys of 438 from Australia and 498 from New Zealand. Based on their finding, there is no association among trust in government organizations and in several e-government services functions from the analysis of data they found from Australians and New Zealanders (Horsburgh et al, 2011). To see the improvement of trust and external political efficacy, the degree to which online initiatives have successful can be tasted through data collected from voters (Parent et al, 2005). Internet is a device that work with other medium, able to provide accurate information and secures communications to the society while e-government implementation is dependent upon citizens' belief (Belanger & Carter, 2008).

According to Pavlou (2003), trust in e-government includes both trust in government organizations and trust in the reliability of the enabling technology these are put together based on outdated specific view on trust. When citizens collaborate with the government efforts to use internet technology services this implies that trust level on the government organizations is high whereas trust level on the e-government service technology

is low which leads to the lack of their trust on the e-government service as a result this will impede collaboration with government organizations (Colesca, 2009). Stakeholders/customers must trust that government service providers that deliver e-government services for the sake of supporting, not inspecting citizen (Belanger & Carter, 2008). In e-government adoption models the most important concept that is integrated to the model is Trust (Mithun, 2012). According to Pavlou (2003), trust facilitates communications in difficult conditions by minimizing the perceived difficulty of the condition. For the extensive implementation of e-government activities stakeholders/customer's trust in the capacity of service provider to deliver e-government services is vital (Belanger & Carter, 2008). Colesca (2009) emphasizes, "Trust in e-government is an abstract concept that underlies a complex array of relationships, so the method used to quantify trust in e-government should therefore account for this abstract nature."

### **3.2 Technology Acceptance Model (TAM)**

Davis and others (1989), emphasizes that the goal of TAM, is "to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified". Its purpose is to explain user intentions to use e-government services or internet technology and further the usage behavior, like previous acceptance and adoption models (Alshehri, Drew & AlGhamd, 2012). In order to conform with mandates from their managers most of the time people may use a system rather than due to their own feelings and beliefs about using it, even though it is generally believed that mostly computers are intended to use by managers and professionals (Desanctis, 1983). Perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of physical and mental effort" and perceived

usefulness of the system as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Karavasilis, Zafiropoulos & Vrana, 2010). Behavioral intentions will have a positive and direct impact on usage behavior as it is stated in many research studies (Venkatesh, Morris & Davis, 2003). Ajzen (1991), emphasizes that behavioral intention has a direct impact on acceptance of technology in a society and organization.

In the field of general technology acceptance models UTAUT is one of the latest developments (Alshehri, Drew & AlGhamd, 2012). “The direct determinants of usage intention and behavior according to UTAUT model assumed that four core concepts such as performance expectancy, effort expectancy, social influence, and facilitating conditions are included (Venkatesch et al., 2003)”. Providing a base for identifying the effect of external influences on internal trust, attitudes, and intentions is a key purpose of TAM (Davis et al, 1989).

### **3.3 Diffusion of Innovation Theory**

According to Deborah (1992), instead of emphasizing on the behavior of individuals within those groups diffusion of innovations theory was developed to recognize the rate of adoption of innovations in a social group. Rogers (1983), emphasizes that; “An individual pass from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of the decision”. Davis (1989), in his study of usefulness and ease of use of online technology, reached at a major conclusion that perceived usefulness of e-government service is a strong relation with user acceptance. Jaak (2000) conclude that, “the rate of implementation of innovation is negatively related to perceived complexity and positively related to perceived relative compatibility, advantage trialability and observability”.



The rate of adoption can be affected by the communication channel type we used to communicate the innovation (Deborah, 1992). For the extensive adoption of e-government services initiatives, citizen trust in the ability of service provider to deliver e-government services is vital (Colesca, 2009). The ways to understand the adoption of innovations is the perception that we have on diffusion of innovations (Rogers, 1983). Fichman (1992), summarizes that “diffusion theory provides a useful perspective on one of the most persistent and challenging topics in the IT field, namely, how to improve technology assessment and implementation”.

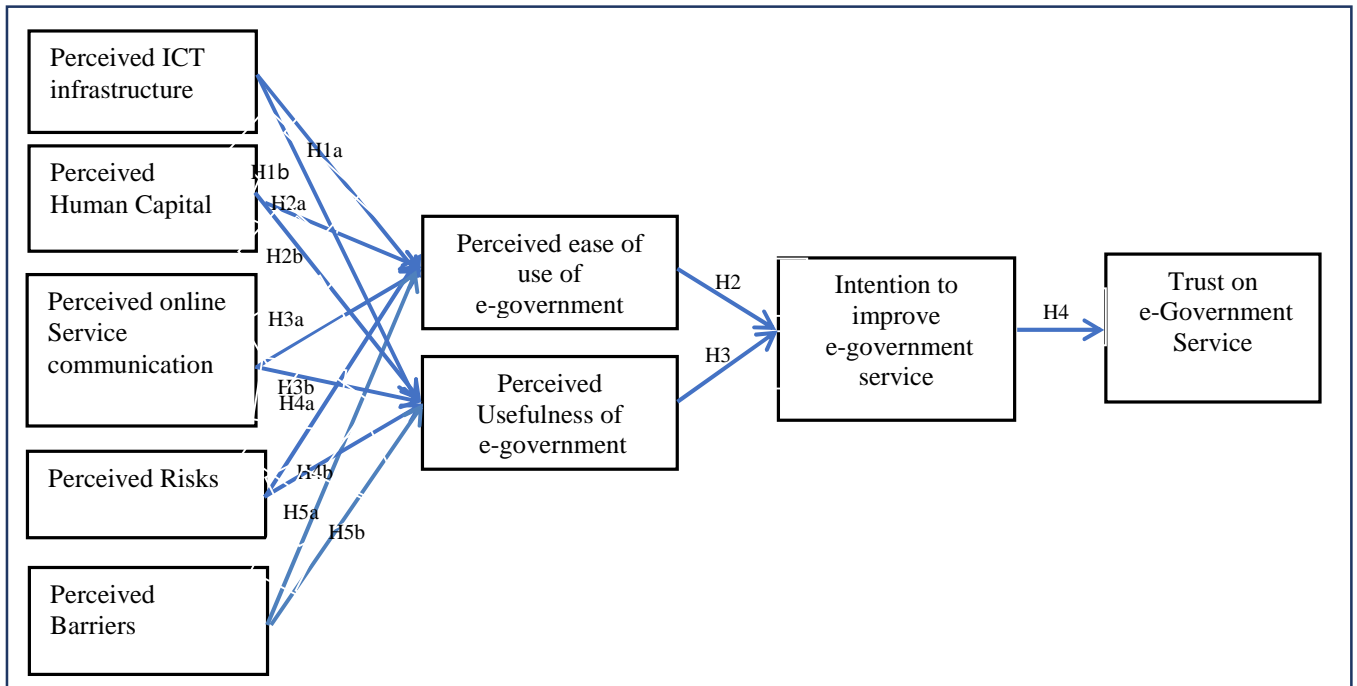
#### **IV. Hypothesis Development**

This study is the first to be conducted on e-government implementation in the selected ministry offices, the implementation of e-government services is one of the most important thing that solve problems regarding governance and reform programs. In this study the Unified Theory of Acceptance and use of Technology (UTUAT) model are modified and used (Venkatesh, Morris & Davis, 2003).

The constructs of UTUAT; ICT infrastructure, Human capital, online service, risks and barriers are incorporated into the model (Venkatesh, Morris & Davis, 2003). To achieve better outcomes and operational efficiency government organizations face rapid growing public demand for e-government services and internal need to employ technology methods (Mehdi, 2009, cited in Cho, 2015). To conduct governmental activities traditional techniques and tools are being drastically reshaping and are developing into innovate electronic methods (Mehdi, 2009, cited in Cho, 2015). Stakeholder/customer centered management method is applied to influence public behavior and improve public-sector performance through the application of advanced and integrated government services

through e-government services, or virtualized environments has its roots in customer relationship management methods (Cho, 2001, cited in Cho, 2015).

The model describes the relationships between e-government factors, intention to improve e-government service and trust on e-government service.



**E-government Implementation Model based on Unified Theory of Acceptance and Use of Technology (UTUAT) and Trust.**

**4.1 Effects of Perceived Information Communication Technology**

**Infrastructures on ease of use and usefulness of E-Government Service**

Information communication technology infrastructure development is implementing throughout the country to reduce information accessibility gaps currently existing among the Ethiopian population. According to Ebrahim&Irani(2005), e-government performance of the respective governments can be degraded due to unreliable information communication technology infrastructure. Ethiopian Ministry of Information Communication Technology

seeks to information communication technology infrastructure development as well as applications and services to be delivered in different ministry offices.

**H1a & b:** ICT infrastructure will have a positive influence on ease of use and usefulness of e-government service.

#### **4.2 Effects of Perceived Human Capital on Intention to ease of use and usefulness of E-Government Service**

According to UNPA and ASPA (2002), serious lack of qualified ICT human capital staff and insufficient human resource development has been a challenging for years as a main problem in developing countries. Absence of sufficient ICT skills among government employees is a core challenge for e-government implementation as a result awareness creation and capacity building are the two important aspects under the human capital development (Ndou, 2004).

According to Adegboyega, Tomasz, Elsa and Irshad (2007), technical skills are essential to implement online services in order to enable smooth service delivery through better information management system. According to Heeks (2002), a strong leadership that have vision is a serious pre-condition in e-government implementation. Moreover, Ke and Wei (2004), organization leaders that have strong vision is an important factor for e-government achievement. Training and education program is an important component for improving the implementation of e-government projects (Alshehri & Drew, 2010).

**H2a & b:** Human Capital will have a positive influence on ease of use and usefulness of e-government service.

### **4.3 Effects of Perceived Online Service Communication on ease of use and usefulness of E-Government Service**

If citizens do not perceive that their participation will have tangible results, citizens are unlikely to use participatory e-government mechanisms (Margolis & Moreno, 2009).

Perceived ease of use can be affected directly by perceived usefulness (Venkatesh, Morris & Davis, 2003). The study on application of e-government services, “discussed that compatibility; trustworthiness and perceived ease of use have direct positive relationship towards citizens’ intention to use the e-Government services (Carter & Belanger, 2005)”.

**H3a&b:** Online service communication will have a positive influence on ease of use and usefulness of e-government service.

### **4.4 Effects of Perceived Risks on ease of use and usefulness of E-Government Service**

Warkentin, Gefen, Pavlou, and Rose (2002) suggest that perceived risk will have the same effect with other factors that affect e-government implementation. Instable nature of online service technology is the source for environmental uncertainty which is beyond the control of the stakeholder/customer whereas behavioral difficulty exists because of web based service providers may behave in an opportunistic manner by taking advantage of the impersonal nature of the electronic environment (Pavlou, 2003). From previous studies Warkentin, Gefen, Pavlou, and Rose (2002), perceived risk is well-defined as “the citizen’s subjective expectation of suffering a loss in pursuit of a desired outcome”. Perceived risk reduces citizen intentions to communicate information and complete communications in on line services due to this reason perceived risk and improving e-government service are taken into care to discuss intention to improve e-government service (Pavlou, 2003).

**H4a&b:**Risks will have a negative influence on ease of use and usefulness of e-government service.

#### **4.5 Effects of Perceived Barriers on ease of use and usefulness of E-Government Service**

European Commission (2006), included several points about e-government barriers such as “Characteristics – either real or perceived – of legal, social, technological or institutional context which work against developing e-government at the EU level, either: because they impede demand, by acting as a disincentive or barrier for users to engage with e-government services; or because they impede supply, by acting as a disincentive or barrier for public sector organizations to provide e-government services”. According to Bhuiyan (2009), where political situation of developing country’s scene is characterized by political leaders who affect the direction of ICT development due to this corruption is an additional challenge. Policy issues such as, less availability of ICT infrastructure, lack of skilled human capital, lack of developed strategic management, low role of leadership, and partnership and collaboration are the challenges that facing by developing country to develop and deploy e-government services (Ndou, 2004).

**H5a&b:** Barriers will have a negative influence on ease of use and usefulness of e-government service.

#### **4.6 Effect of Perceived ease of use of e-government services on Intention to Improve E-Government Service**

According to Davis (1989) perceived ease of use defined as “the degree to which a person believes that using a particular system would be free of physical and mental efforts”. Concerning e-government services or online services given by organizations users will perceive the system as simple to use in general when the system is clear and easily

understandable as a result ease of use is expected to support service providers' intentions to improve e-government service as well as a perception of the usefulness of the services (Davis, 1989).

**H2:**Ease of use of e-government services will have a positive influence on Intention to improve e-government service.

#### **4.7 Effect of Perceived usefulness of e-government services on Intention to Improve E-Government Service**

Davis (1989) defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance". According to Sang (2009), e-government service users will find the e-government services or online services are useful if it supports them to find the necessary information that supports them to accomplish or use public services this shows that a high level of usefulness is expected to increase intention to improve e-government Service. According to Davis (1989), he recommended that perceived usefulness is a significant factor influencing the acceptance of information technology system in technology acceptance model.

**H3:**Usefulness of e-government services will have a positive influence on Intention to improve e-government service.

#### **4.8 Effect of Intention to Improve E-Government Service on Trust in e-government services**

According to Sang and Lee (2009), trust incorporates the intention of citizen to take information, to deliver information, and to demand online services. Tolbert and Mossberger (2006), recommended that online service can increase traditional based trust by increasing communications with stakeholder/customer and perceptions of reaction and that service provider has been recommended as a way to enhance customer trust in

government organizations and improve stakeholders/customers' evaluations of government organizations. Due to less efficiency between governments and its main stakeholders or citizens gap is created as the same time this gap leads citizens to lose their trust on government (Fang, 2002).

As specified in 'A Handbook for Citizen-Centric e-Government' prepared by European Commission (2003), emphasizes that "citizen-centric e-Government services are designed to deliver increasingly cost-effective, personalized and relevant services to citizens, but also serve to enhance the democratic relationship, and build better democratic dialogue, between citizens and their government, which then enhances the practice of citizenship within society".

**H4:** Improving e-government service will have positive influence on Trust on e-government services.

## **V. Research Methods**

### **5.1 Research methods and approaches**

The data for this study has collected via survey from the selected target group with regard to participant's percentage of gender, age, education, income, and occupations. Questioners were conducted with ICT managers and e-government experts or Information Communication Technology officers within the selected ministry offices as a way of linking with what is really in the ground in the area of e-government implementation and what initiatives are working as the office. This study focuses on the service provider for the purpose of managing the scope of the research, while being wide enough to cover general e-government implementation as a country too.

To assess the perception of respondents on the subject, the survey questions are planned to check in 5-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree).

Questionnaire has been consisted of two parts. The first part is demographic information of each participant. Second part is perception of each variable is included in this section. As the study focuses on the implementation of e-government in some selected minister offices of Ethiopia, the target population is ICT managers and ICT officers/e-government experts. The questionnaire is administered to 7 ICT managers and 96 ICT officers are incorporated in analysis.

**Table 3: Number of Participants in each Ministry**

No.	Ministry	Participants
1	Ministry of Science and Technology .....	10
2	Ministry of Public service and Human Resource.....	14
3	Ministry of Industry.....	12
4	Ministry of Federal and Pastoralist Development Affairs .....	12
5	Ministry of Social Affairs.. .....	8
6	Ministry of Education.....	13
7	Ministry of Health and Tourism .....	10
8	Ministry of Finance and Economy .....	10
9	Ministry of Information and communication Technology.....	14
Total Number of Participants .....		103

## VI. Results and Discussion

### 6.1 Descriptive Statistics

Table 4 Shows the demographic profile of the survey respondents. From the table majority of respondents were male (79.61 percent male verses 20.39 percent female). Regarding age distribution ages between 29 and 38 were dominant (50.49 percent). Concerning their education level 5.83 percent Diploma, 72.82 percent Bachelor, and 20.39 percent are Masters. From this we can see majority were Bachelors.



**Table 4: Demographic profile of the survey respondents**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>1, Age</b>		
18-28	28	27.18
29-38	52	50.49
39-48	21	20.39
49-58	2	1.94
>59		0.00
<b>2, Sex</b>		
Male	82	79.61
Female	21	20.39
<b>3, Educational Status</b>		100.00
Diploma	6	5.83
Bachelor	75	72.82
Masters	21	20.39
Phd	1	0.97
<b>4, Position/Status(optional)</b>		
Maintenance officer	12	11.65
Network Administrator	29	28.16
Database Administrator	14	13.59
System Administrator	11	10.68
ICT Director/Head	7	6.80
Other	30	29.13
<b>5, Your monthly income (optional)</b>		
2,000-5,000	31	30.10
5,001-8,000	48	46.60
8,001-11,000	11	10.68
11,001-14,000	7	6.80
Not available	6	5.83

**Table 5: E-government Implementation Status of Organizations**

<b>Variables</b>	<b>Percentage (%)</b>			
	<b>Low</b>	<b>Medium</b>	<b>High</b>	<b>Total</b>
ICT Infrastructure	23.30	52.43	24.27	100
Online Services	40.78	45.63	13.59	100
ICT Human Capital	27.18	56.31	16.50	100
Overall Status of e-government Implementation	27.27	63.64	8.74	100

## 6.2 Hypotheses Testing

To analyze all the variables separate regressionstest are appliedin this study. Table 6, 7 and 8 shows the regression results.

Table 6 shows the regression analysis results of factors affecting e-government implementation on ease of use of e-government services. The result of the ANOVA in the case of factors on ease of use of e-government service find the models significant at the 0.01 level with  $F=18.933$  (R-square = .158),  $F=7.557$  (R-square = .070),  $F = 10.383$  (R-square = .093),  $F = 5.972$  (R-square = .056) and  $F= 11.516$  (R-square = .102). The results of regression analysesfrom simple regressionverified that H1a, H2a and H3aare supported and it shows that ICT infrastructure, human capital and online service communication are positively related to ease of use of e-government services. The result shows that ICT Infrastructure is an important determinant for ease of use of e-government services.

H4a and H5a are negatively affects the ease of use of e-government services (the higher value shows that risks and barriers significantly affects the ease of use of e-government services).

In this study, risk and barriers influences the ease of use of e-government services. The result shows that barriers more significantly affect than risks ease of use of e-government services.

This also support the existing literature on the topic that use of e-government services reliant on how easy it is to use it.

**Table 6: Summary of Regression Results for factors on ease of use of e-government service**

Variables (Independent -> dependent)	Standardized Coefficient ( <i>t</i> -value-Sig)
	Ease of use of e-government services (PEU)
ICT Infrastructure ->PEU (H1a)	0.397(4.351***)
Human Capital ->PEU(H2a)	0.264 (2.749***)
Online Service communication -> PEU(H3a)	0.305 (3.222 ***)
Risks-> PEU(H4a)	0.236 (2.444***)
Barriers-> PEU(H5a)	0.320 (3.394***)

Table 7 shows the regression analysis results of factors affecting e-government implementation on usefulness of e-government services. The result of the ANOVA in the case of factors on usefulness of e-government services find the models significant at the 0.01 level with  $F= 18.703$  (R-square = .156),  $F= 7.025$  (R-square = .065),  $F = 12.122$  (R-square = .107),  $F = 17.245$  (R-square = .146) and  $F= 6.720$  (R-square = .062). The results of regression analyses verified that H1b, H2b and H3b are supported and it shows that ICT infrastructure, human capital and online service communication are positively related to usefulness of e-government services. According to the regression result ICT infrastructure and online service communication are important determinants for usefulness of e-government services. An important stage for all governments to get full economic benefits of information communication technology depends on a method of learning and developing skills (OECD R, 2003).

H4b and H5b are negatively affects the usefulness of e-government services. Risks and Barriers influences the usefulness of e-government services (the higher value shows that risks and barriers significantly affects the usefulness of e-government services). The result shows that risks more significantly affect than barriers usefulness of e-government services.

**Table 7: Summary of Regression Results for factors on usefulness of e-government service**

Variables (Independent -> dependent)	Standardized Coefficient ( <i>t</i> -value-Sig)
	Usefulness of e-government services (PU)
ICT Infrastructure ->PU(H1b)	0.395(4.325***)
Human Capital ->PU(H2b)	0.255 (2.650***)
Online Service communication ->PU(H3b)	0.327 (3.482 ***)
Risks->PU(H4b)	0.382 (4.153***)
Barriers->PU(H5b)	0.250(2.592***)

Table 8 shows the regression analysis results of ease of use and usefulness of e-government service on intention to improve e-government services. The result of the ANOVA in the case

of ease of use and usefulness of e-government service on intention to improve e-government services find the models significant at the 0.01 level with  $F= 2.179$  ( $R\text{-square} = .021$ ),  $F= 14.063$  ( $R\text{-square} = .122$ ) and  $F= 3.489$  ( $R\text{-square} = .033$ ). The results of regression analyses verified that ease of use of e-government services has been found positively influencing the intention to improve e-government services and thus, H2 is supported. Thus, the result from simple regression support the existing literature that ease of use of technology has positive effect on intention to improve e-government services. ICT managers and officers believe that ease of use of technology increase the intention to improve e-government services in their organization.

H3 is also supported. Usefulness of e-government services also positively influences and having significant impact on the intention to improve e-government services. Usefulness of e-government services refers to the degree to which the existing system support their daily activities. The finding also shows usefulness of e-government services are important determinant for the intention to improve e-government services. Minimum training about usefulness of e-government service should be given to all level of employees and officials also.

H4 is also supported and intention to improve e-government services has positively influences and also have significant impact on trust on e-government services. The intention to improve e-government refers to the readiness of organization to implement or use e-government services. ICT Managers and Officers believe that improving e-government services increase stakeholders/customers trust on e-government services provided by organization. Security and privacy a major issue in increasing customer trust. This study also support world e-government index that shows Ethiopia e-government index average is below African and European Average as mentioned on table 1.

**Table 8: Summary of Regression Results for ease of use and usefulness of e-government service on intention to improve e-government services and Trust on e-government services**

Variables (Independent -> dependent)	Standardized Coefficient (t-value-Sig)
	Intention to improve e-government services
Ease of use of e-government service ->intention to improve e-government services (H2)	0.145(1.476***)
Usefulness of e-government services->intention to improve e-government services (H3)	0.350 (3.750***)
Intention to improve e-government services ->Trust on e-government services (H4)	0.183 (1.868 ***)

In summary, my findings show that ICT infrastructure, human capital and online service communications has a significant positive impact on both ease of use and usefulness of e-government services whereas risks and barriers has a significant negative impact on both ease of use and usefulness of e-government services. From the above analysis result ease of use and usefulness of e-government services has a significant impact on intention to improve e-government services.

Trust on e-government services can be improved when organization are improving services provided online. According to Omari (2006), “E-government trust model showed that trust was multidimensional issue”. The empirical result also shows that when the service provided through e-government are improved the level of trust also increased. “To improve trust level government need to promote policies based on the willingness to use ICT instead of simply increasing the accessibility of hardware” (Myeong S., Kwon Y., Seo H., 2014). The other important point is to improve stakeholders/customer trust on e-government services of organizations service provider must focus on privacy and security issue. IT security policies and procedures process automation, social and cultural practices and legislation are the main building blocks of trust (Omari, 2006).

From the respondent's analysis result that showed on the table 5 the status of selected ministry offices of ICT infrastructure, online service communication and ICT human capital are in middle position. Whereas the overall view about e-government implementation status of the organizations are also in the middle status.

## **VII. Conclusions**

The purpose of this study was to investigate the implementation of e-government in public service delivery and to assess the trust of customers on e-government services provided by the selected organizations. Additionally, this study identifies factors that affect the implementation of e-government services. This study also serves as starting point to conduct research on other organizations. Even though, Ethiopia is in the primary stage of e-government services implementation compared to developed and other fast developing countries this study will help specifically for those selected organizations for improving e-government implementations and to enhance customer trust on e-government services.

From the result of the study specially factors like ICT infrastructure and human capital needs special attention to improve e-government services. Trust level is insignificant this shows that stakeholders/customers trust on service provided by the organizations is less. Thus, the trust on e-government services should be improved in all selected organizations. Additionally, this research shown the application of the technology acceptance model in context of e-government implementation in selected organizations. The intention to improve e-government services by the organizations is good according to the result of the study. So, this aim should be practically implemented and works towards to improve the trust of e-government services. Largely the commitment of top leaders plays a significant role in the implementation of e-government and in improving the trust of e-government service provided to stakeholders/customers. Even though trust level of customer is varied, the quality of trust on

e-government services can be improved by focusing on customer centered and different e-government services.

Understanding the ease of use and usefulness of internet technology plays a great role in improving e-government service in organizations. E-government services are ineffective in all selected ministries. However, intention to improve e-government services are varied in selected ministries. This study therefore recommends that the government or policy makers should establish policies that will ensure that the process of e-government implementation is regulated so as to ensure that the process is effective in all ministries.

The study found out that regardless of intention to improve e-government services, there accessibility of service to stakeholders/customers in selected ministries had not yet improved. The study further established that providing service manually cause overcrowding and lessen trust of stakeholder/customer was still evident despite the intention to improve e-government service in the ministries. This study therefore recommends that the organizational leaders and management team charged with the responsibility of ensuring successful e-government service implementation by ensuring that online service is effectively implemented and increased the speed of service delivery at the ministries which might result to maximizing stakeholder/customer trust on e-government service.

The study established that even if there are few online facilities the citizens were unable to access facilities due to lack of skill and less accessibility of internet connection. This study therefore recommends government in addition to promoting facilities that is available online, governments should work with other non-government bodies to fill the gap of the citizen and to provide internet connection access to citizen.

Less attention is given in developing ICT human capital in the organizations due to this there is unqualified ICT human capital. This study therefore recommends government

should work on developing ICT human capital to develop more web based services to fill the gap in developing services.

The study established that even if there is no well-organized ICT infrastructure citizens were unable to access facilities due to lack of financial support and less awareness of top leaders. This study therefore recommends government should fill the gap by building better ICT infrastructure in the organization and create awareness among top leaders. In addition even if the national ICT policy of Ethiopia was prepared in 2009 to develop and deploy e-government services less attention is given to this national policy by top leaders or managers. So this study recommends that leaders or managers should work to achieve the national ICT policy.

Even though the study results show statistically significant in most variables, this study also has some limitations. Some of the limitations are this study explains some variables which means not all independent variables are included. Deep study should be conducted to identify all relevant variables. The second thing is the study did not include the customer/stakeholders. Hence future study that includes both service providers and stakeholders/customer should be conducted. Third limitation of this study is the research focus only on limited organizations, in future study all sectors or ministry offices should be included. Despite these limitations, this paper shows the implementation of e-government and trust on e-government services by analyzing major factors that affect the e-government implementation. Generally, this study requires more comprehensive study to show the trust level of stakeholders/customers on e-government service provided by organizations.



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## IX Index

### KDI School of Public Policy and Management

#### **Research on Evaluating E-government Implementation in Public Service Delivery** **Ease of use and usefulness of e-government, intention to improve E-government services and Trust on E-government services**

First and for most, I would like to thank you for your willingness to fill this questionnaire format. Please take few minutes to answer the following questions. All pieces of information will be used only for research purpose. You don't have to write your name. I assure that your response will be kept in secret. Samples will be selected from ICT managers and ICT officers. I will welcome any questions or comments concerning this survey. Your contribution is very important to identify e-government implementation in your organization and to know stakeholders/customers Trust on e-government services provided by your organizations and finally to know the status of e-government implementation of your organizations. Each of your response is very useful for the study. Therefore, please go through each question patiently and give genuine answer.

Thank you for your valuable cooperation

#### **PART I Questions on Evaluating E-government Implementation in Public Service Delivery**

***Instruction:*** - Please put "✓" mark in the box for your suitable answer.

**Strongly Disagree (1)      Disagree (2)      Neutral (3)**  
**Agree (4)      Strongly Agree (5)**

#### **1, Rate your perception of ICT infrastructure in perceived ease of use of e-government service**

	1	2	3	4	5
a. The availability of ICT infrastructure will increase the ease of use of e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- |  |                       |                       |                       |                       |                       |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| b. Well organized ICT infrastructure in organization will improve ease of use of e-government services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Availability of data center improves the ease of use of e-government services                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. ICT infrastructure enhances the ease of use of e-government Services                                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Upgrading existing ICT infrastructure improves the ease of use of e-government services             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. Infrastructural developments in organization facilitate the ease of use of e-government services    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g. Overall, ICT infrastructure can improve the ease of use of e-government services                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**2, Rate your perception of ICT infrastructure in perceived usefulness of e-government services**

- |   | <b>1</b>              | <b>2</b>              | <b>3</b>              | <b>4</b>              | <b>5</b>              |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. The availability of ICT infrastructure will increase the usefulness of e-government services       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Well organized ICT infrastructure in organization will improve usefulness of e-government services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Availability of data center improves the usefulness of e-government services                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. ICT infrastructure enhances the usefulness of e-government Services                                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Infrastructural developments in organization facilitate the usefulness of e-government services    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. Overall, ICT infrastructure can improve the usefulness of e-government services                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**3, How do you perceive the human capital of your office in perceived ease of use of e-government services**

- |   | <b>1</b>              | <b>2</b>              | <b>3</b>              | <b>4</b>              | <b>5</b>              |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Well trained ICT officers will enhance the ease of use e-government services   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Well informed leaders about the benefits of e-government services will facilitate in ease of use of e-government service         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Adequate ICT staff in organization will enhance the ease of use of e-government service  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Adequate knowledge of ICT to use e-government service by stakeholders/customers improve the ease of use of e-government services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Overall, adequate and qualified human capital can improve the ease of use of e-government service                                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**4, Rate the perceived human capital of your organization in perceived usefulness of e-government services**

- |   | <b>1</b>              | <b>2</b>              | <b>3</b>              | <b>4</b>              | <b>5</b>              |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Well trained ICT officers will enhance the usefulness of e-government services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



- |  |                       |                       |                       |                       |                       |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| b. Well informed leaders about the benefits of e-government services will facilitate usefulness of e-government services             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Adequate ICT staff in organization will enhance the usefulness of e-government services   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Adequate knowledge of ICT to use e-government service by stakeholders/ customers improves the usefulness of e-government services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Overall, adequate and qualified human capital contribute to the usefulness of e-government services                               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**5. Rate or show your perception on online service communication on perceived ease of use of e-government services**

- |   | <b>1</b>              | <b>2</b>              | <b>3</b>              | <b>4</b>              | <b>5</b>              |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Compatibility of online service communication system improves ease of use of e-government services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Speed of online service communication system improves ease of use of e-government services         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Providing one channel service enhance the ease of use of e-government services                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. User friendly online service communication system improves ease of use of e-government services    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Overall, online service communication system improves ease of use of e-government services         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**6. Rate or show your perception on online service communication on perceived usefulness of e-government services**

- |  | <b>1</b>              | <b>2</b>              | <b>3</b>              | <b>4</b>              | <b>5</b>              |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Accessing useful information on online service communication system increase the usefulness of e-government services  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Uploading updated information on online service communication system increase the usefulness of e-government services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Compatibility of on online service communication system e Increase the usefulness of e-government services            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Reliability of online service communication system increase the usefulness of e-government services                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Security of online service communication system increase the usefulness of e-government services                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. Cost effectiveness of online service communication system increase the usefulness of e-government services            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g. Providing better online service communication system increase the usefulness of e-government services                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h. Overall, online service communication system improves usefulness of e-government services                             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**7, Kindly select and rate perceived risks on perceived ease of use of e-government service in your organization**

- | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|----------|----------|----------|----------|----------|
|----------|----------|----------|----------|----------|

- |  |                       |                       |                       |                       |                       |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Misusing of the e-government services reduces the ease of use of e-government service         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Unstable network in organization can reduce the ease of use of e-government service           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Difficulty in accessing important information reduces the ease of use of e-government service | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Complex e-government services reduce the ease of use of e-government service                  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Overall, risks in e-government implementation reduces the ease of use of e-government service | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**8, Kindly select and rate perceived risks on perceived usefulness of e-government service in your organization**

- |   | <b>1</b>              | <b>2</b>              | <b>3</b>              | <b>4</b>              | <b>5</b>              |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Accessibility of information by other parties reduces the usefulness of e-government service | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Lack of full control over information reduces the usefulness of e-government service         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Misusing of the e-government services reduces the usefulness of e-government service         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Overall, risks in e-government implementation reduces usefulness of e-government service     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**9, Rate your perception of the following Barriers in perceived ease of use of e-government service**

- |   | <b>1</b>              | <b>2</b>              | <b>3</b>              | <b>4</b>              | <b>5</b>              |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Low level of knowledge among stakeholders/customers reduce the ease of use of e-government services            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Inadequate training for different parties reduce the ease of use of e-government services                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Lack of adequate ICT infrastructure availability reduce the ease of use of e-government services               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Lack of partnership and collaboration among different parties affects the ease of use of e-government services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Overall, Barriers in e-government implementation reduces ease of use of e-government service                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**10, Rate your perception of the following Barriers in perceived usefulness of e-government service**

- |   | <b>1</b>              | <b>2</b>              | <b>3</b>              | <b>4</b>              | <b>5</b>              |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Lower investment in ICT infrastructure reduce usefulness of e-government services                  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Lower attitudinal awareness among stakeholders/customer reduce usefulness of e-government services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Resistance to change among different parties affects usefulness of e-government services           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Lack of formal policy as organization affects the  |                       |                       |                       |                       |                       |

usefulness of e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Lack of partnership and collaboration among different parties reduce usefulness of e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Less support from leaders in improving ICT infrastructure affects the usefulness of e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Overall, Barriers in e-government implementation reduces usefulness of e-government service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**11, Rate or show your perception on perceived ease of use of e-government service on intention to improve e-government service in your office.**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
a. The speedy service delivery will increase the intention to improve e-government service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. The rate of use of electronic services by customers will increase the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. The ease of use of technology can increase the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. The level of ICT Knowledge of ICT officers can increase the Intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. The level of ICT knowledge of customers can increase the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Protection and confidentiality in use of e-government service maximize the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. The decrease in cost of online service communication can increase the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**12, Rate or show your perception on perceived usefulness of e-government service on intention to improve e-government service in your office.**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
a. Understanding usefulness of technology will increase the Intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Providing reliable service increases the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. The clarity of organizational structure will improve the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. The accessibility of online service facilitates the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. The availability of ICT infrastructure will increase the usefulness on the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Citizen participation in governmental decision will increase the usefulness of the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Effective leadership support and commitment will increase the intention to improve e-government services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**13, Rate the intention of improving e-government service in your organization**

**1      2      3      4      5**

- |   |                       |                       |                       |                       |                       |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. In providing convenient public services through e-government services                        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. In promoting the use of ICT to provide public services                                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. In giving efficient services to customer   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. In building advanced online services to provide better public services                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. In Providing easily accessibility of services by customer                                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. In providing one channel services for customer   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g. Overall, my organization working on to improve public Service through e-government services. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**14, Kindly rate your perception of your customer Trust on e-government service given by your organization**

- |  | <b>1</b>              | <b>2</b>              | <b>3</b>              | <b>4</b>              | <b>5</b>              |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. E-government services offered by my organization increase trust in public sector                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. By offering better services from online citizens trust level has been increased                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Development of advanced online services help in enhancing trust in public sector                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Transparent services offered by online help to build better image in public sector                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. I believe using e-government services directly related to higher level of trust in public sector      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. Secured e-government services will help in enhancing trust in the area of public service delivery     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g. Reliability of e-government services given by organizations increase trust on public service delivery | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h. Overall, Trust of customer on e-government service given by your organization                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**15, How do you rate the current status of your organization on e-government Implementation**

**Low Medium High**

- |  |                       |                       |                       |
|--|-----------------------|-----------------------|-----------------------|
| a. How do you rate the status of ICT infrastructure in your office?                                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. How do you see/rate the status of online services in your office?                               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. How do you rate human capital capacity in your office?  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. What is your overall view about the status of e-government implementation in your organization? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**PART II Demographic Information**

**Instruction:** - Please put "✓" mark in the box for your suitable answer.

1. Age  18 - 28                       39 - 48  
 29 - 38                       49 - 58                       above 59
2. Sex  Male  
 Female
3. Educational Status

Diploma

Bachelor

Masters

Phd

4. Position/Status (Optional):

Maintenance officer

Network Administrator

Database Administrator

System Administrator

ICT Director/Head

Other \_\_\_\_\_

5. Your monthly income (optional)

2,000 – 5,000

5,001 – 8,000

8,001 – 11,000

11,001- 14,000

Not Available

**Thank you!**