



UNIVERSITY OF NAIROBI

FACULTY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

**AN ASSESSMENT FRAMEWORK FOR CONTINUOUS USE OF E-
GOVERNMENT SERVICES: CASE STUDY NAIROBI COUNTY**

By

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Submitted in partial fulfillment of the requirements for the Degree of Master of Science in
Information Technology Management of the University of Nairobi

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DECLARATION

This project is my original work and to the best of my knowledge this research work has not been submitted for any other award in any University

Signature ... 

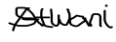
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This project report has been submitted in partial fulfillment of the requirement of the Master of Science Degree in Information Technology Management of the University of Nairobi with my approval as the University supervisor.

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Abstract

With the rapid growth in information technology globally, Kenyan government has adopted e-government services and is now offering most of its services online and this has been enhanced by the Covid 19 pandemic. There is need to measure the continuous use of these services. This study's key objective is therefore to develop an assessment framework for continuous use of these services with the case study of Nairobi County. This study used structured questionnaires, whereby data was obtained from users of e-government services. The users gave their perception on how security, trust, privacy, mandatory use and attitude influence continuous use of these services. The finding indicated that security, trust and mandatory use has a major and positive effect on deep use of e-government services while privacy and attitude has a negative and insignificant impact on deep use of these services. The deep use of these services has a significant and positive influence on their continuous use. This study has identified factors that are most significant in continuous use of these services and factors that the government can use to enable their effective use. It's therefore recommended that the government has to consider security, trust and mandatory use as critical considerations that lead to continuous use of these services.

Keywords: E-government, deep use, continuous use, security, trust, mandatory use.

Chapter One: Introduction

1:0 Background of the study

This study focuses on use of e-government services where e- government is termed as application of Information Communication Technology (ICT) to offer government services and information to people, businesses, and other government bodies, to purposefully improve the way government delivers its services and interact with its citizens. Wide area networks, the Internet, and mobile phones are examples of information technology tools that have been utilized to improve communication between government and people. (S. Neekpoa, Deekue 2016). The implementation of e-government services has more benefit like transparent, quality of service, efficiency, effectiveness, accessibility all the time and confidentiality. Kenyan government has adopted e-government services with most of its department's offering services online and this has brought about more citizens using E-Government web portal to access government information and services.

Security, user privacy and trust are considered to be some of the most important issues to consider in transformation of the nation into a digital hub (Mutimukwe, C., Kolkowska, E. and Grönlund, Å, 2019). As information technology advances, more government entities/ initiatives in Kenya are adopting the e- government web services and citizens are required to provide more private information about them through e-government web portals where they interact with the government. This interaction raises many concerns about security and privacy of the information and these concerns are growing as more data is obtained and technology improves. From the literature it argues that if users of government e-services are assured that the information they share through e-government web portals are secure and protected this will increase more users to use the e-government services. (Al-Jamal, M. and Abu-Shanab, E., 2015).

In Kenya the government recognizes the necessity of information access and protection as stated in the National ICT Policy. Personal data is a critical resource in the growth of economy and thus its needs a lot of security and protection. The Government of Kenya values the confidentiality and security of Personal Data and is dedicated to protecting the individuals' privacy under the Kenyan Constitution. The government believes that this protection is critical to preserving public faith in companies that handle personal data, as well as to Kenya's social and economic progress in the fourth revolution.

In order to fully benefit from the digital economy and to mitigate the risks that come with digital transformation, enforcing security, user and data protection is critical (Privacy and Data Protection Policy 2018). This enforcement increases trust, confidence and attitude of users thus enabling continuous use of these services.

This study reviews literature of previous related work on e-government web portal and it explores issues within on E-government web portals that limit the use of e-government services. It will also look into different elements that lead to continuous use of these services and how data is collected, transmitted, stored and availed to users. Data privacy policies available will be evaluated and analysis. Data will be collected and analyzed to propose an assessment framework for continuous use of these services. This framework may be used by government to make critical decision on continuous use of these services.

1:1 Problem statement

If citizens adopt and are able to continuously use E-government services this is an indication of successful transformation of a country to the digital world. Security, privacy, trust, attitude and mandatory use are some of the key factor leading to continuous use of the E-government web based services as it enhances user's confidence, trust, and attitude towards the use of these services.

In third world countries in Africa there are still major issues on security, trust and privacy so there is need to assess the security privacy, trust and other elements in the E-Government web portals so as to identify the most significant elements that lead to continuous use of these services.

1:2 General Objective.

To develop assessment framework that lead continuous use of E-government services.

1:2:0 Specific Objectives

1. Investigate and review existing frameworks on continuous use of e-government.
2. Investigate on factors that lead to continuous us of e-government services.

3. To propose a framework on continuous use of e-government.
4. Test and validate the proposed framework for continuous use of e-government.

1:3 Research Questions

1. What are the frameworks on continuous use of e-government?
2. What factors lead to continuous use of e-government?
3. How can we evaluate the proposed framework?
4. Is the developed framework accurate and useable?

1:4 Significance of the study

Scholars, academicians, the government, E-government developers, and users of e-government services will benefit from the study's outcomes.

a) Scholar and Academicians

Researchers and future academics will gain from the study because it will serve as a source of reference as well as offer areas for further research that future scholars can pursue.

b) The government and E-government developers

The study results will give a structure for the government and e-government developers that they can use to enable continuous use of e-government services.

1.5 Limitations of the study

1. E-government initiatives being a new concept in Kenya and there is scanty empirical research literature in use of e-government web services. Secondary data available are from other countries and do not address the Kenyan context limiting a detailed study.
2. Some information on use of e-government might be regarded by the informants as classified or of strategic importance hence they may fail to give all the required details.

1.6 Scope of the Study

The study's focus was on finding and validating an assessment framework on continuous use of e-government web portals. Literature was reviewed, existing frameworks and different factors were identified. Data was collected from e-government services users through questioners

then the collected data was analyzed through regression and from the results a framework is proposed on assessment framework for continuous use of e-government services.

Chapter Two: Literature Review

2:0 Introduction

This chapter delves into more literature related to e-government web portals. Focusing on elements that lead to continuous use of e-government services and how they enhance continuous use of these services. It also expounds more critical challenges facing use of e-government. Existing literature on security strategies, privacy policies, models and frameworks were reviewed, how they are designed to guarantee e-government security, user privacy and trust.

2:1 E-government Overview

E-government is the application of ICT to provide government services and information to residents, businesses, and other government bodies, aimed at improving the way government delivers its services and interacts with its citizens. E-government aids in the fight against corruption and bribes within government institutions and also in reforming the country's social and economic status. E-government also aids in improving governance and providing citizens with greater access to policies, norms, laws, and information.

E-government brings about transparent, quality of service, efficiency, effectiveness, accessibility of services all the time, and confidentiality in the government institutions (Sam Neekpoa Deekue 2016). Despite e-government having all the benefits there are challenges that it experiences.

E-government has different categories which include Government to Government (G2G) which is internal communication between government institutions, department to department, agency to agency within the government. Government to business (G2B) is communication between business entities and government on issues of mutual benefit. Government to citizens (G2C) this is communication between citizens and government via the e-government platform where

citizens access government services and information via the e-government portals. (Sam Neekpoa Deekue 2016)

2:2: Security in E-government web-portal

In information technology, security is defined as the protection of digital data and IT assets against internal and external, deliberate and unintentional attacks that could jeopardize systems or data. This protection encompasses the use of security procedures, software applications, and IT services to identify, mitigate, and respond to attacks. Security is classified in different types which include: physical security, Information security, internet security, Network security and mobile security (TechTarget Contributor 2017). Cyber security framework designed by the US National Institute of Standards and Technology (NIST) has given a guideline on website security by giving five functions which are Identify, Protect, Detect, Respond and Recover and come up with five security antecedents that have positive impact the end users' notion of e-government security and they include:

1. Tangible security feature – This is described as technological security mechanisms that are visible and may be physically observed by users on a certain website. These features include http(s) and padlock icon.
2. General information security awareness - This is the user's overall general understanding of information security and the dangers of potential security attacks.
3. User interface quality- This is the website's usability and how it is designed and displayed to users, where website look secure, organized and easy to navigate.
4. Cyber-security law - these are the rules and regulations that the government employs to safe guard the systems and general portals in case of a cyber-security incident. These laws include security policies.
5. Security culture this is how the government fosters a sense of security among its people, by internet activity monitoring and security advises given which has a very high influence of how citizens view e-government services.

2:3 Trust in E-government web-portal

Trust is most often defined as our attitudes, dispositions, or beliefs about others. Increased activity and interaction with online systems is a key aspect of minimizing perceptions of online environments. Trustworthiness is seen as the sense of confidence in the e-government reliability and integrity. To develop trust people ought to trust the government and the associated technologies (Lemuria Carter & France Bélanger 2005).

Inadequate security and privacy in electronic networks might cause distrust in e-government applications. This can result in threats such as unauthorized access to classified personal information, as well as exposure to online fraud or identity theft, which are key concerns to consider while using e-government services. This might well be influenced by broader trends in public trust notions, which are influenced by how a government handles transparency and openness issues. Citizens who have a positive opinion of technological and organizational trustworthiness, as well as the quality and usefulness of e-government portals, are more likely to trust e-government, but age and privacy concerns have a negative impact on trust (Colesca, 2009).

2:4 Privacy and Data protection in E-government

Privacy is the freedom from interference or intrusion. Personal data is a key resource that stimulates economics' growth and development and thus the need to ensure privacy and protection of the data and need to be managed carefully. Kenya, like many other countries, has seen technology advancements that have influenced how personal data is generated, processed, stored, and distributed (Privacy and Data Protection Policy 2018- Kenya). The Government of Kenya requires all the parties associated with the handling of Personal Data to adhere to the requirements of protecting Personal Data and this is bided under section 31 of the Kenya Information and Communication Act (2010), a telecommunications company risks to be prosecuted if it uses the information or data collected in any other way than the course of the business. The Kenyan government is committed to protecting individual privacy under the Constitution, as it acknowledges that this protection is critical to sustaining public trust and advancing Kenya's social and economic growth in the fourth revolution.

The General Data Protection Regulation (GDPR), a European Union privacy law effected on May 25, 2018 states controllers and processors of personal data must set up appropriate technical and organizational measures to fulfill the data protection standards. Data controllers must consider privacy when developing information systems.

The e-Government Readiness Assessment Framework suggests that Governments can give priority to issues establishing and an independent telecommunication regulation authority, which can be incorporated in the implementation of policies and standards such as cyber security, the transferability of data and interoperability standards which are relevant to e-government. The operations of these bodies at all levels of government must be evaluated in order to best satisfy the needs of people, save money, and promote transparency through electronic government.

2:5 Deep of use of e-government

This can be outlined as an inner use of these services where users make intensive interaction with the portals to achieve their objectives. Users not only use e-government portals to browse for service but they apply for services, make payments for the services and they further interact with the portal to generate reports and certificates. This kind of interaction leads to continuous use of the portal which is the ultimate objective of government. Technology acceptance model (TAM) looks into mandatory use and attitude as factors than can be applied to evaluate the use of e-government service according to (Özel Sebetci 2015). According to a study conducted in Europe, the extent of use of these services is determined by the quality of services provided, trust of citizens in governments, and the digital divide. Citizens perceive the economic benefits when they want to use the e-government service. This study further revealed that nations with high levels of income have focused their efforts on investing in e-government for them to reap the benefits of usage by people.

2:6 Theoretical framework

2:6:0 Citizen-Government Privacy Alignment Model

The Citizen-Government Privacy Alignment Model (CGPAM) looks at three key issues privacy, security and trust which are main important factors influences their attitudes. Governments must encourage citizens to use e-government sites as a barometer of progress. They should give 3 basic elements in this enforcement: enforced laws, a privacy policy, and security systems. When security is put into effect, it translates to more managed privacy, which promotes both more trust and more efficiency. People will utilize e-government websites and services in a shallowly if the three are not enforced, which means they will use them for simple information that is not critical, financial, or important, as well as incorrect information. People will begin to use these services in earnest once they believe they are secure, have a privacy policy, and trust it. That will result to regular use and Continuous E-government Use Model (CEGUM), which is the main objective of e- government projects.

2:6:1 Technology acceptance model (TAM)

Technology Acceptance Model (TAM) is a based theoretical model by Özel Sebetci 2015 that may be applied to assess mandatory technology usage in e-government. The model looks at different factors that result to usage of these services. This study indicated that offering users with system training and management support has a favorable influence on attitude, however mandatory use had a negative association with attitude in the event of any problems experienced during use.

2:6:2 E-Government Maturity Model

This is a series of steps that ascertain the maturity of the e-government which included both technical and non-technical security aspects. This model gives a system for ranking E-government services and enhance the quality of service. E-government maturity model designs consider security on transaction stage only according to Mohamed D. Waziri¹ and Zaipuna O. Yonah². However the literature suggests that security should be considered in all stages to enable secure and achieve e-government service delivery. There is a proposed secure e-government maturity model that has of 4 layers that can be utilized as an e-Government information security checklist, as well as a mechanism for public enterprises to achieve secure e-Government services.

Based on the outcomes of this study, more research to test and validate the proposed model in one of the previously analyzed organizations is recommended.

2:6:3 E-Government standardization frameworks in Kenya

E-government standards are approved methods and measures that serve as a comparison and reference framework for measuring and evaluating components, systems, and equipment (E-government strategies march 2004).

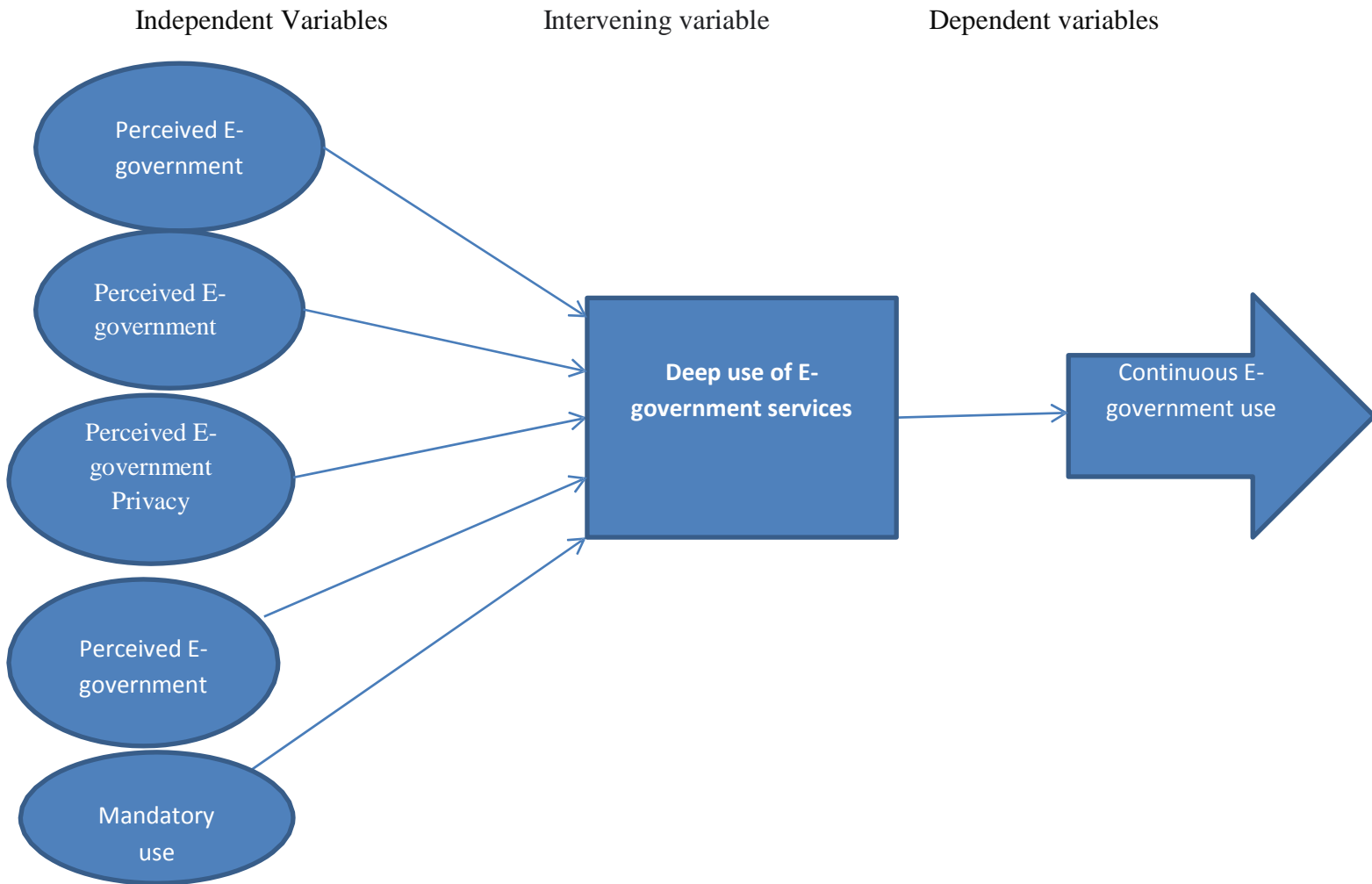
In this framework we have Institutional framework which help enforcement of the standards. The main objectives of this standards is to ensure quality of the ICT systems and components been applied in the e-government departments.

This Standardization covers different categories which include hardware, networks, telecommunications, databases, operating systems, buildings, rooms, environment and the legal environment in relation to ICT.

2:7 Conceptual Framework

Research Hypotheses Development

From the literature reviewed a conceptual framework is developed as per below:



Chapter Three: Research Methodology

3: 0 Introduction

Research methodology outlines the methods and approach used to gather information on the research problem as discussed below.

3:1 Research design

This is the plan employed to get answers to research problem Orodho (2003). This study used descriptive research (pure research). Questionnaires were used to collect information from sample population of users with a sample size of 385. This research design used the collected data from questioners to investigate on the factors that leads to continues use of e- government services.

3:2 Populations

Refers to total group of people that a researcher is interested in. This study the population comprises of users of the e-government services in Kenya residing within Nairobi County and a total of 385 users of e-government services were targeted for questioners. These respondents were selected because they are familiar with the topic of the study.

3:3 Sample Frame

The population units from which the sample was collected are listed in the sampling frame. (Cooper & Schindler, 2012). For this study the sampling frame was created from Nairobi County which has seventeen parliamentary constituencies.

3.4 Sampling Design

The study's sample size was 385 people, based on simple random sampling. A number was allocated to each constituency and each person was chosen at random and purely by chance, in that everyone had the same chance of being picked at any point when sampling was being done to be able to achieve the desired representation from a specific population without bias process (Bryman& Bell, 2012).

3.5 Sampling Size

This study's sample size was calculated using Cochran formula which allows calculation of an ideal sample size given a desired level of accuracy. It's considered appropriate where large population is involved.

$$n_0 = \frac{Z^2 pq}{e^2}$$

n = sample size;

Z = the table value for the level of confidence, for instance 95% level of confidence = 1.96,

e = margin of error – 0.05

p = proportion to be estimated 0.5

$$((1.96)^2 (0.5) (0.5)) / (0.05)^2 = 385.$$

3:6 Data collection methods

The process of obtaining information about a phenomenon using data collection tools is known as data collection (Sekaram 2000). The study collected primary data using questionnaires and secondary data was obtained from internet, database browsing, journals and other sources such as the sector annual reports.

Questionnaires were sent to users within Nairobi County via online communication. In this study, questionnaires were used since the participants were regarded literate and capable of effectively answering the questions. The questions regarding demographics such as age and gender were to help enhance the research study's transparency and also to indicate how many male and female respondents were there, as well as their ages. Questionnaires on E-government portal and its use the respondents were asked to rate how much they agreed or disagreed with a statement presenting an issue on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree).

3.7 Reliability of the study

A measure's dependability is improved by including a big number of related items, evaluating a large number of people, and using consistent testing procedures. The study used a pilot group of ten respondents who were chosen at random and were excluded in the final sample size. After that, the data was entered into SPSS for Cronbach reliability testing, which was used to determine the internal consistency metric. The questionnaire was divided into 3 sections, Section A - focused on demographics; Section B - on E-government web portal, and Section C – on use of government portal focusing on the factors that leads to continuous use of e-government portal.

3:8 Validity of Research

The validity of the data was determined using both face and content validity, with a check on face validity and a survey issued to the pilot group to obtain suggestions for adjustment. The content validity of a large domain of items equivalent to those on the exam is inferred using test scores. The sample population's representativeness is a concern for content validity. According to Gillham (2008), the knowledge and skills covered by the test items should be representative of the larger field of knowledge and skills.

3:9 Data analysis

Quantitative data analysis methodologies were used to analyze the acquired data. Quantitative method included descriptive analysis where descriptive analysis of demographic variables was done on frequencies and percentages. The data was analyzed with the SPSS application and thereafter data status reports generated. Percentages and frequencies were used in descriptive statistics. The data was presented in frequency tables for easy comparison.

3.10 Ethical Considerations

In this study, ethical consideration makes sure that the scholar adheres to the conduct guidelines established by the authorities in the field of research. Voluntary engagement of respondents, deception of participants, anonymity and confidentiality of information provided, analysis and reporting, harm or danger to participants, and any other professional code of ethics required may all arise as ethical issues (Babbie, 2011).

To make sure the research is conducted ethically, the researcher has a moral responsibility to treat the information with caution, and because some of the respondents were hesitant to disclose some information, it was necessary to guarantee the respondents of the information's use and confidentiality.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.0 Data Collection and Analysis

Questionnaires were used to assess the factors that result to continuous use of e-government portals. The same data was used to validate the Continuous E-government Use Model (CEGUM) by Al-Jamal, M. and Abu-Shanab, E. (2015). The respondents were required to respond to questions on different variables that were selected for this study. This research achieved 80% completion success rate with 310 out of the targeted 385 respondents where 300 were fully answered and useable, while 10 responses were incomplete. It's also worth noting that a handful of respondents approached refused to take part in the study, claiming they don't use the e-government services.

4:1 Findings and Discussions

Table 4.1 Respondent's geographical distribution and demographics

Geographic distribution			
Region	Target	Response	Percentage
Nairobi	385	310	80%
Demographics Respondents			
Variables	Classification	Frequency	Percentage
Gender	Male	150	48%
	Female	160	51%
Age Bracket	19 -30 years	100	32%
	31- 40 years	156	50%
	41- 50 years	52	17%
	Over 50 years	2	1%
Highest level of education	College/certificate	75	24%
	University degree	160	52%
	Post graduate	72	23%
	Others	3	1%

4:2 E-government web portal

Usage of Various e-government web portals was assessed; findings and discussions shall be discussed below

Table 4.2

E-Government web portal			
Questionnaire Item	Classification	Frequency	Percentage
Web portal user have ever used	Itax web portal	96	31%
	E- citizen Web portal	138	45%
	NTSA Tims Portal	64	21%
	Nairobi County Self-service portal	6	2%
	All the above	6	2%
I often use the selected web portal	Very often	32	10%
	Often	159	51%
	Not often	119	39%
	Never used	0	0%

Table 4.2 Findings, the research established that E-citizen web-portal is the most used portal with 45% correspondents confirmed to have used. Use of the portal gave a positive response 61% respondents indicated often and very often use the web portal and 39% not often using the portal. This implies that there is continuous use of this service.

4: 3: Use of E-government web portal

Users of E-government web portals were requested to rate their agreement with the statement on a five-point Likert scale ranging from strongly disagree to strongly agree. Participants who strongly disagreed and those who disagreed were combined into one group of respondents who opposed the statements, and those who strongly agreed and those who agreed were combined into one group of respondents who agreed with the statements, yielding three proportions of

respondents to compare. The three proportions included respondents who opposed the statements, neutral with the statements and those who concurred with the statements.

Findings are presented in tables below and followed with interpretation.

Privacy

Questionnaire Item	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
I feel confidence my online privacy is maintained	10%	32%	42%	9%	7%
I feel confident that my data is not used for any other purpose apart from the intended Purpose	3%	32%	29%	23%	13%
Average score	7%	32%	36%	16%	10

Table 4:3 findings shows that 26% of users of e-government services opposed the statements that privacy while 39% concurred with the statement focusing on privacy in e-government portal and 36% were neutral.

Security

Questionnaire Item	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
Use of Password bring confident that data is note	3%	39%	32%	19%	7%

accessible to unauthorized persons.					
E-government portal are not vulnerable to unauthorized access	1%	44%	34%	15%	6%
Average score	2%	42%	33%	17%	6%

Table 4:4 findings shows that 23% of users of e-government services opposed the statements that focused on security while 44% concurred with the statement focusing on security in e-government portal and 33% were neutral.

Trust

Questionnaire Item	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
E-government data storage is secure and private.	3%	41%	41%	9%	6%
E-government payment process is legit.	22%	56%	19%	3%	0%
The more I use e-government portals the more I trust them.	9%	53%	25%	13%	0%
Average score	11%	50%	28%	8%	2%

Table 4:5 findings shows that 10% of users of e-government services opposed the statements that focused on trust while 61% concurred with the statement focusing on trust in e-government portal and 28% were neutral.

Mandatory use

Questionnaire Item	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
I use e-government portal because its mandatory by government	9%	53%	25%	13%	0%
Average score	9%	53%	25%	13%	0%

Table 4:5 findings shows that 13% of users of e-government services opposed the statements that focused on mandatory use while 62% concurred with the statement focusing on mandatory use in e-government portal and 25% were neutral.

Attitude

Questionnaire Item	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
I like using e-government portals.	16%	53%	25%	6%	0%
Availability of support when using e-government portals make me like using the e-	3%	44%	25%	22%	6%

government portal					
Average score	10%	49%	25%	14%	2%

Table 4:6 findings shows that 16% of users of e-government services opposed the statements that focused on attitude while 59% concurred with the statement focusing on attitude in e-government portal and 25% were neutral.

Deep use of e-government services

Questionnaire Item	Classification	Frequency	Percentage
What I use on E-government portal for	Browsing to see services offered	16	5%
	To apply for e-government services	153	49%
	To pay for e-government services	96	30%
	To download Certificates and reports	45	14%

Table 4.7 Findings, the research established that 49% of users use the e-government portal to apply for services, 30 % pay for services and 14 % download reports/certificates, 5% of users use the portals to browse for services.

Continuous use of e-government

Questionnaire Item	Very Frequently	Frequently	Neutral	Not Frequently	Never interact
How frequent I interact with the e-government portal to achieve my objective	0%	52%	0%	47%	0%

Average score	0%	52%	0%	47%	0%
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Table 4.8: Findings shows that 45% of users of e-government services opposed the statements that they frequently interact with e-government portal to achieve their objectives while 55% concurred with the statement that they frequently interact with e-government portal to achieve their objectives and 0% were neutral.

4:2 Data Analysis

The framework was analyzed through SPSS to shows relationships between the variables.

- Predictors : Independent variable: (Constant) Privacy, Trust, security, Attitude and Mandatory use
- Moderating variable : Deep use of E-government services
- Dependent Variable : Continuous use of E-government

Regression analysis: Independent Variable and Intervening variable.

Model summary

R	R Squared	Adjusted R	Error of Estimation	Accuracy	
0.752	0.684	-.612	0.180965	5.265	
Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig	
	B	STD.Error	Beta		
Constant	.382	.210		-1.688	.070
Security	.284	.179	.145	.468	.004
Trust	.344	.176	.056	.252	.002
Attitude	-.187	.129	-.292	-1.443	.379
Privacy	-.098	.156	-.189	-.628	.385
Mandatory use	.463	.098	.114	.642	.000

Table 4.10 shows that $r=0.752$. This indicates that security, trust, attitude, privacy and Mandatory use have a strong relationship with deep use of e-government services. R^2 was 0.684 which indicate that 68.4% of the changes in deep use of e-government services are influenced by Security, trust, attitude, privacy and Mandatory use.

Table 4.10, the multiple regression equation was:

$$Y = 0.382 + 0.284X_1 + 0.344X_2 - 0.187X_3 - 0.098X_4 + 0.463X_5 + e$$

The findings showed when Security, trust, attitude, privacy and Mandatory use are held constant the regression coefficient for deep use of e-government services was 0.382 which shows a positive relationship.

The study found that changes in Security, trust and Mandatory use would lead to positive and significant changes in deep use of e-government services as shown by regression coefficient of Security 0.284 trust 0.344 and Mandatory use 0.463. on the other hand the study found that changes on attitude, privacy would lead to negative and insignificant change in deep use of e-government services as shown by regression coefficient of -0.187 and -0.098 respectively. This means that attitude will insignificantly affect deep use of e-government services negatively and that privacy will insignificantly affect deep use of these services.

The study established insignificant relationship between attitude and privacy and deep use of e-government services where their p-values were greater than 0.05 and the regression coefficient of 0.379 and 0.385 respectively.

Regression analysis: Deep use of E-government services and Continuous use of e-government services.

R	R Squared	Adjusted R	Error of Estimation		Accuracy	
0.952	0.734	-.715	0.27809		5.265	
Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig
	B	STD.Error	Beta			
Constant	.472	.130			34.868	.002
Deep use of e-	.348	.295	.654		17.468	.000

government services					
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Table 4.11 found that $r=0.952$. This indicates that Deep use of e-government services has a strong relationship with continuous use of e-government services. R^2 was 0.734 which indicate that 73.4% of the changes in deep use of e-government services can attribute to continuous use of these services.

The multiple regression equation was:

$$Y = .472 + .348x_1$$

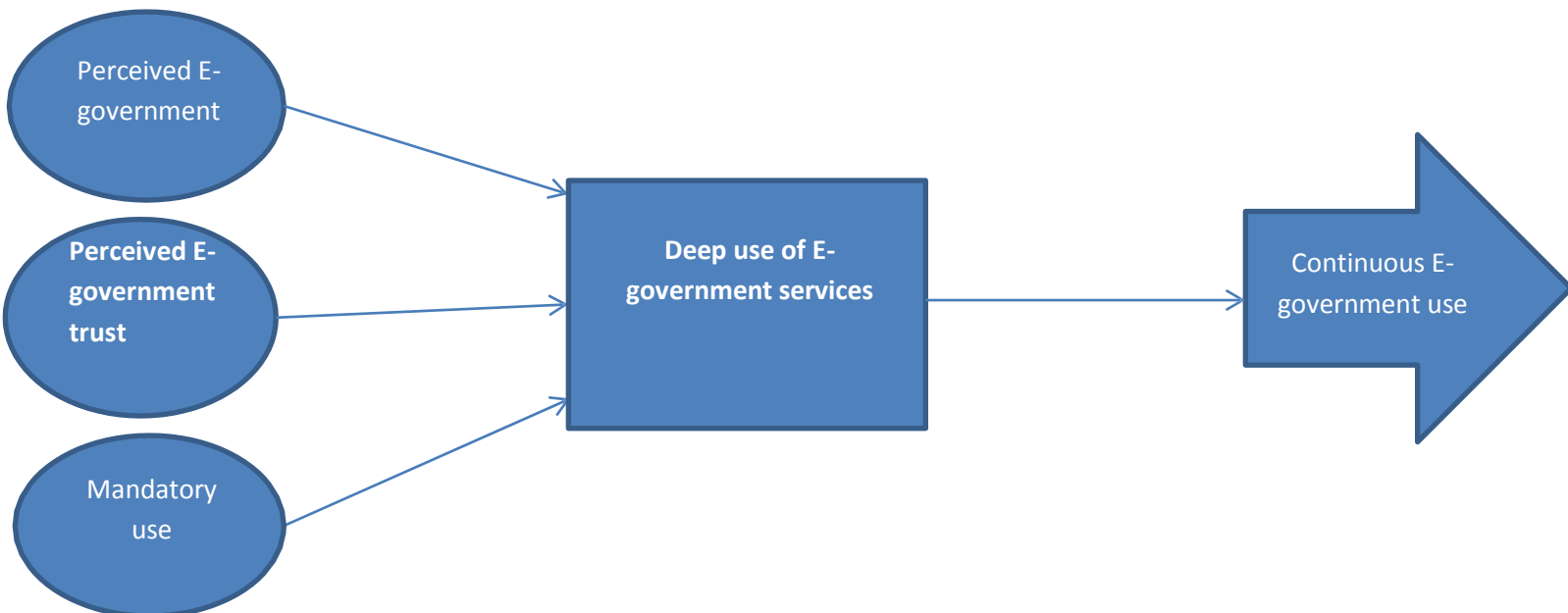
The study found that when deep use of e-government services is held constant, the regression coefficient for their continuous use was 0.472. The study established that changes in deep use of e-government services would lead to positive and significant change in continuous use of e-government services as shown by regression coefficient of 0.348.

4:3: The Resulting Framework

Independent Variables

Intervening variable

Dependent variables



The overall findings indicates that after carefully analysis of the results the independent variables that is Security, trust and mandatory use positively construct deep use of e-government services while attitude and privacy has a negative effect on their deep use. In additional the findings show that deep use of e-government services has a strong, positive and significant effect on continuous use of e-government services.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.0: Introduction

The goal of this study was to identify and test an appropriate assessment framework for continuous use of E-government services. Its conclusion was based on the objective of the study and recommendation of the study is given with suggestion for further research areas that should be considered on their continuous use.

5.1: Conclusion

Objective one: Investigate and review existing frameworks on continuous use of e-government.

The study achieved this objective by reviewing different literature on continuous use of e-government service. From this literature Continuous E-government Use Model (CEGUM) and Technology acceptance model (TAM) framework were investigated and they guided the study on coming up with the resulting framework.

Objective two: Investigate on factors that lead to continuous us of e-government services.

On reviewing framework on use of E-government services, the study investigated and identified security, trust, privacy, mandatory use, attitude and an intervening variable deep use of e-government as the factors that lead to continuous use of e-government. These factors were used to construct the proposed framework that eventually after analysis of data a resulting framework was proposed.

Objective three: Propose an assessment framework on continuous use of e-government.

This objective was achieved through objective two where factors were identified that helped in construct of the proposed framework. The factors security, trust, privacy, attitude and mandatory use were the independent variable an intervening variable was deep us of e-government services which constructed the proposed framework.

Objective four: Test and validate the developed assessment framework for continuous use of e-government.

Testing and validating the proposed framework was done where data was acquired through questioners and analyzed to identify the significant and relationship between the variables. Independent variables privacy and attitude were noted to have a negative and insignificant relationship with the intervening variable deep use of e-government services and were therefore dropped leaving security, trust and mandatory use to have a positive and significant relationship which helped to construct the resulting framework.

General objective: To develop an assessment framework on continuous use of E-government services.

This study reviewed various theoretical frameworks and identified factors that lead to continuous use of e-government services. These factors included security, trust, privacy, attitude and mandatory use. They were tested and validated and from the analysis of the outcomes, a resulting framework was set up showing that security, trust and mandatory use are the most significant and positive factors that lead to continuous use of e-government. From this a resulting assessment framework on continuous use of e-government services was developed.

5.2: Achievement

The research has developed a framework that can be used in assessment of factors that lead to continuous use of e-government. The framework has established and validated factors which include security, trust and mandatory use as factors that lead to continuous use of e-government.

The findings of the study can be considered as reference material while making critical decision on continuous use of e-government. It also builds the researchers to extend the research on continuous use of these services as more government initiatives are still adopting the e-government services.

5.3: Recommendation

This research has identified factors that are most significant in continuous use of e-government services and factors that the government can use to enable successful adoption of E-government services. It has also established areas that the government needs to improve in the process of a successful implementation of e-government services. It's therefore recommended that the

government should consider security, trust and mandatory use as the key factors that lead to continuous use of these services.

5.4: Limitation

The study focused on only Nairobi County which is an urban county and this may not bring out the actual picture of the results as the use of e-government is done country wide. The study was also limited to the constructs as there is limited study on continuous use of e-government services.

Appendix 1: Questionnaire

QUESTIONNAIRE


The aim of these research questionnaires is to collect data for the purpose of research. The data will only be used for research purposes and not any other purposes. The information given will be treated with high degree of confidentiality Please provide the correct information. If you encounter any challenges in filling the questionnaire please contact Esther on 0725869017.

Section A: Demographic

- 1) City/town.....
- 2) What is your gender?
 Male
 Female
- 3) Your age bracket:
 19 - 30 Years
 31 - 40 Years
 41 - 50 Years
 Over 50 years
- 4) What is your highest level of education?
 College certificate /diploma
 University degree
 Post graduate
 others (specify)

Section B: E-government web portal

1. Which of the following e-government web portal have you ever used?

Itax Web portal 

Ecitiven

NTSA Tims portal

Nairobi County Self Service Portal

All the above

2. How often do I use above selected e-government portals

Very often

Often

Not often

Never use

Section C: Use of E-government web portal

This section requires you to indicate to what extent you agree or disagree with the statements below about the e-government portals you have used.

Please select the number that best describes your opinion (1 – Strongly disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly Agree)

Privacy

1. When interacting with e-government portals I feel confident that my online privacy is maintained? _____
2. When I am using e-government portals I am confident that my data will not be used for other purposes apart from the intended purpose? _____

Security

1. The use of passwords on e-government portals make me confident that my data cannot be accessed by unauthorized persons? _____

2. I am confident that the e-government portals I have used are not vulnerable to unauthorized access? _____

Trust

1. When using e-government portal I trust that my data is stored in a secure and private environment.
2. When using the e-government portal to pay for services I trust that the payment process is legit.
3. The more I use e-government portal the more I trust it.

Mandatory use

1. I use the e-government portal because it mandatory to do so as per government requirement.

Attitude


1. I like using e-government portals?
2. The availability of support when using the e-government portals makes me like using the e-government portals.


Deep use of E-government services


1. What do you use the e-government portal for?[check all that apply]
 - Browsing to see the services offered
 - To apply for e-government services
 - To pay for e-government services
 - To download certificates and reports

Continuous use of E-government service

1. How frequent do you interact with the e-government portal to achieve you objectives.

Very frequently 

Frequently 

Not frequently 

Never interacted 

Research Schedule

Items	Start date	End date
Literature review	5 th January	29 th March
Research area identification	4 th February	20 th March
Formulate research questions, objectives and design	5 th February	21 st March
Research writing	3 rd March	30 th march
Proposal presentation	31 st march	1 st April
Data collection	2 nd April	15 th May
Data analysis	16 th May	29 th May
Second research writing and presentation	30 th may	30 th June
Finalize the project	1 st July	30 th July

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