

Critical Success and Failure Factors of e-Government Project Implementation in Kenya

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케냐의 전자정부 프로젝트 핵심 성공 및 실패 요인

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Use of ICT in Government has ability to improve service delivery to its citizens, and yet many developing countries have lagged behind in the implementation of e-Government. Many e-Government initiatives also failed to achieve their objectives in developing countries. This paper therefore aims to identify critical failure or success factors in Kenya, using Heeks' Factor Model. A survey questionnaire was developed and data were collected and analyzed from officials and interested citizens. The analysis results enabled to highlight seven specific success and failure factors, and their constituent elements in Kenya. The Kenyan overall e-Government implementation score belongs to the Zone of Improvement (3.52 of total 5.0), which means partial success or failure. The enablers of e-Government projects are good strategy formulation, and internal and external drive, whereas main failures of e-Government are weak ICT infrastructure. The areas for improvement are project management, design, competencies and funding. Data analysis highlights both strengths and weaknesses for each factor or variable. In particular, Kenyan government excels at the drive for change by top to bottom government officers as well as external stakeholders, while the government officers who are using e-Government are satisfied with the availability of vision, strategy and plan of e-Government implementation. Both technologies and e-transactions laws were the worst of all the variables in e-Government implementation. Two areas should be improved using immediate corrective action. In-depth study reveals that government officers and citizens can't fully use their laptop and mobile devices due to the lack of both ICT network and its operating technology, and legal system associated with the transaction of business information. Finally, the study ends up with recommendations for policy makers to shape the future of e-Government system in both developing and developed countries.

Keywords : E-Government Implementation, Success and Failure Factors, Developing Countries, Factor Model, Kenya.

1. Introduction

Today's, e-Government is well known to improve public ser-

vice delivery. Its adoption results in greater efficiency and effectiveness of government administration. Therefore, e-Government emerged as a hot issue in the academic circles and among policy makers from both the developing and industrialized nations [4]. In particular, the implementation of e-Government initiatives has become one of the main goals in several

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countries including countries in the East Africa, more specifically the Republic of Kenya.

The Kenyan Government approved e-Government strategy in 2004, making the start of e-Government journey. In 2006, National ICT policy was approved under the Ministry of Information and Communications (MoICT). The government has since initiated several e-government systems with the aim of enhancing efficiency, transparency and democracy within public administration. Some examples are e-Registry for business registration, passport application and processing system, and e-Pay. “The overall goal of e-Government is to make the Government more result oriented, efficient and citizen centered” [11].

However, e-Government implementation is not a simple task. e-Government initiatives have encountered different problems in its implementation and thus these have not been fully implemented in developing countries. The success or failure of e-Government programs does not rely on whether they are implemented in developed or developing countries. Developing countries tend to have experienced more failures than advanced ones in implementing e-Government [19]. Therefore, a thorough analysis on these problems is required to identify the challenges in developing countries. This paper aims to investigate critical failure or success factors that influence implementation of e-Government systems in Kenya, using Heeks’ Factor Model.

2. ICT Environment in Kenya

The liberalization of the telecommunications market started in the year 1999; this would then give a wide scope for the private sector innovation and market entry. At around the same period, the Communication Commission of Kenya (CCK) was established with a mandate of regulating the sector and hence issued for the first time ISPs with licenses. Monopoly was experienced while Telkom Kenya Ltd operated the internet gateway and backbone until 2004. The national backbone was expanded during this period of time, however the international bandwidth never increased until the end of Telkom’s exclusivity period.

The first e-Government strategy was formulated in 2004 and was approved in December, 2004. This was to create order and harmony in Government ICT initiatives which were at the time invariably characterized by disharmony and lack of coordination with each department pursuing their own

ICT agenda which resulted in wastage through duplication of resources. Therefore, the key strategy was to set up ICT institutions that would immediately manage this. Directorate of e-Government was to oversee, among others mandates, coordination of implementation of strategy, formulation and communication of ICT guidelines and enforcement of national and international standards (roles being played by ICT Authority after merging e-Government Directorate, GITS & ICT Board).

Some of the projects were implemented during the five year plan, keys of them are the Integrated Financial Management Information System (IFMIS) and Integrated Personnel and Payroll Database (IPPD) which are fully operational in the ministries. Other applications that have been rolled out include the Local Authorities Integrated Financial Operations Management Systems (LAIFOMS), Education Management Information System (EMIS), Integrated Taxation Management Systems (ITMS) currently known as ITAX after making great improvement in design, online Recruitment and Selection System in the public service commission and the Border control System in the Ministry of state for Immigration and Registration of persons.

The current state of Kenyan e-Government system is for general administration including personnel, finance, procurement, budget, and email system among others. They are composed of main online systems that provide the public services for the daily lives of citizens. Most systems run in individual departments for instance the national tax system, immigration information system, legal information system and education system. However, information exchange in these departments done by manual. The National ID, Passport tracking service, Examination result and candidate selection system and public tender system are also provided in the form of e-service though they are limited as partial service [10].

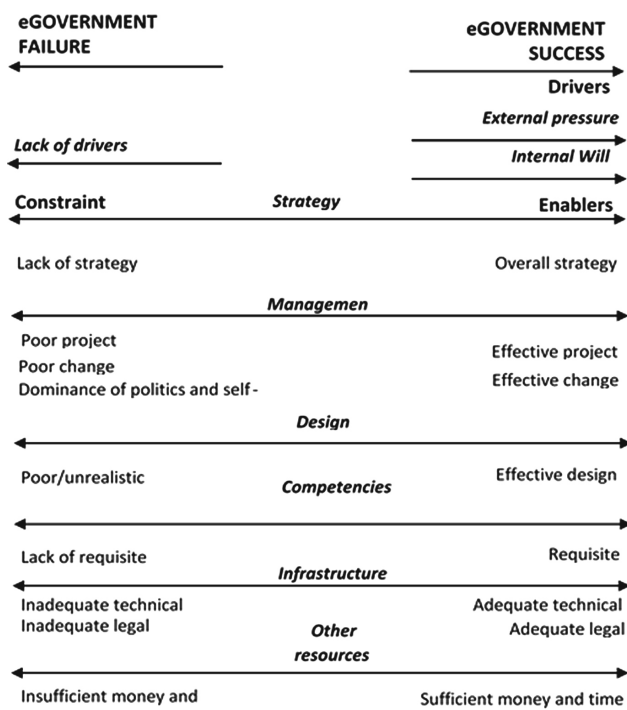
3. Success/Failure Factors of e-Government in Kenya

According to GoK-EGS [11], e-Government is defined as “the use of ICT such as the wide area network, internet, and mobile computing, by government agencies to transform government operations in order to improve effectiveness, efficiency, service delivery and to promote democracy.” Similarly, Heeks [13] defines e-Government as the use of ICTs to improve public services delivery, and it brings with the promise

of greater efficiency and effectiveness in the public sector.”

Many studies have been carried out in order to identify critical success factors (CSFs) that influence e-Government initiative implementation. Altameem et al. [3] identified 13 CSFs that are associated with e-Government implementation. On the other hand, Fortune and White [8] formulated 27 CSFs just to mention a few. Ultimately, such success or failure factors that many researchers have suggested are well summarized into a Factor Model (FM) developed by Heeks [12] as an assessment framework for e-Government in developing countries.

The FM highlights failure, success and improvisations areas as well as gap between design realities. It particularly expands the objectives and values dimension into elements on the drivers, strategy and change management [12]. The FM model comprises Drivers (external and internal pressure), Enablers (Strategy, management, design, competences, technology and others), and Constraints (considered as the negative aspects of drivers and enablers) as explained in <Figure 1>. The FM model enables to identify and prioritize a list of e-government projects’ success and failure factors based on perception of stakeholders in Kenya. This model summarizes the reasons behind success and failure of e-Government projects. Left-pointing items encourage failure, whereas right-pointing ones encourage success.



<Figure 1> Heeks’ Assessment Framework for e-Government [12]

This study describes each factor of Hicks’ Factor Model as well as their current status in e-Government initiative implementation in Kenya. First of all, internal and external drive for e-Government is very important for successful implementation. External pressure relates to support for reform and achievement of e-Government projects’ goal from outside government such as aid donors, civil society and citizen, whereas internal pressure is associated with support from key internal government officials [12]. In order to achieve a successful project in civil agencies it has to be endorsed by top management [3]. Strong support from top officials is required throughout the implementation process in order to avoid e-Government implementation facing obstacles such as resistance to change. Pressure from citizens for quicker services from government is also a good drive that can improve e-Government implementation. There is a significant pressure from citizens in the Kenyan environment for faster services from government to citizens hence pressurizing the government to improve service delivery by adopting and implementing e-government services. In the Kenyan context internal drive is highly indicating that there is a good political will towards e-Government implementations.

Another important factor for e-Government implementation is strategy, and success in providing public services online highly depends on the strategy undertaken or adopted. Strategy relates to availability of overall vision and master plan for good governance and for e-Government projects’ implementation [6]. Kenya has taken a leading role in e-Government implementation as compared to her other sister countries in East Africa. She has an approved ICT Master plan and an e-Government strategic plan which is a roadmap to guide improvements to the online service to her people. Strategy works hand in hand with vision and therefore e-Government implementation begins with establishing a broad vision hence forming a goal of any organization.

Management is related to three factors such as project management to deal with clear roles and planning, change management as incentives to create commitment, and change agents for projects. Nograšek [16] argues that change management in e-Government implementation is a very complex issue. However, change management has not been enough considered because e-Government is predominantly seen only as a technology mission, not organizational transformation issue. Changes expected are mostly determined by policies and legislation, public-private partnership and finally a huge resistance to change. Change management is a structured ap-

proach to transition individuals, teams and organizations from the current state to the desired future state [16].

Another much overlooked factor is design. Design relates to the availability of effective modular and incremental approach. Design requires stakeholders to participate at or involve in the inception of projects. Many e-Government projects have failed to meet the needs of the users because stakeholders' involvement is overlooked in design development. There might be more underlying factors that caused the election system to fail.

An innovation with substantial complexity requires more technical skills and needs greater implementation and operation efforts to increase their chances of adoption. Altameem et al. [3] insist that e-Government adoption need a number of technical staff to help implement it. Many governments have suffered from lack of technical staff, which is therefore very important component of factor in e-Government implementation. In similar, competency factor was considerably weak and therefore classified as a constraint in e-Government implementation in Kenya.

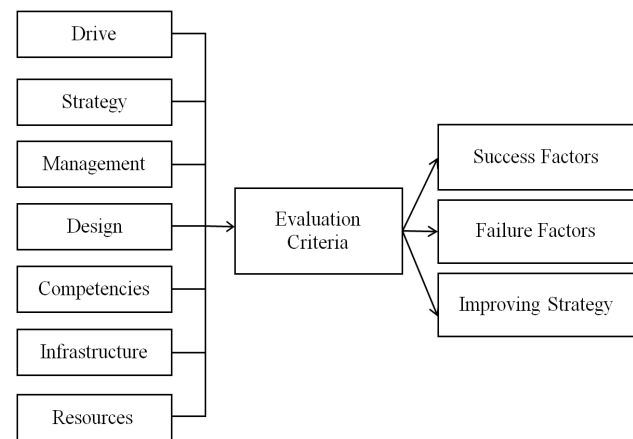
Infrastructure is a backbone of any e-Government implementation initiative in both developed and developing countries. In many developing countries, infrastructure is a major challenge that seems to be the reason that e-Government projects fail. The same scenario is not exceptional for Kenya. Infrastructure that is capable of supporting and enabling the execution of e-Government is a requirement for successful e-Government implementation [3]. An e-Government infrastructure comprises an infrastructure application server environment and its security, data and content management tools, application development tools, hardware and operating system, and systems management platform.

Last, funding is a critical factor for both starting e-Government initiatives and continuing their implementation. Therefore, the importance of funding in providing excellent service cannot be over emphasized. It is the glue that holds the building, collections and staff together and allows attaining goals [1]. It is insisted that funding is essential in providing excellent services to citizens through excellent service delivery mechanisms.

4. Research Model and Survey Instrument

As a result of literature review, Heeks' Factor Model excels at evaluating e-Government system in developing countries.

But, when Heeks' Model is used to evaluate e-Government system, it does not provide measurement items for each of seven factors except describing some guidelines or frameworks for assessment. Heeks' Factor Model doesn't also represent some characteristics or environments which are unique to each developing country. However, Kenya has undertaken e-Government system project since 2004 but never evaluated its performance in spite of huge amount of investment on it. Therefore, this study developed a research model to evaluate e-Government system and its implementation and identify success or failure factors and their elements in developing countries, especially Kenya (see <Figure 2>).



<Figure 2> e-Government System Evaluation Model

In order to develop an online survey instrument, this study selected seven factors from Heeks' Factor Model [12] which included drive, strategy, management, design, competencies, infrastructure, and other resources. The authors used Heeks' Factor Model due to the fact that it well provides the global framework of evaluating e-Government system and implementation process in developing industries. An online survey instrument was based on these seven factors.

The questionnaire was prepared after a detailed study had been made of the previous literature and ICT environment in Kenya in Chapters 2 and 3. The first part of the study focused on collecting the relevant documentation so that a more comprehensive picture of e-Government system in Kenya could be determined in order to prepare survey questionnaires. A total of thirty two variables were developed from seven factors. Fifteen survey items of them had been derived from Bando [6] with four from Shin [18], whereas the remainder were added from reviewing a wider range of literature as well as Kenyan e-Government system (see <Table

4>). It should be noted that thirteen items were developed to reflect the unique characteristics of e-Government implementation carried out in Kenya.

The wording of the questionnaire was intentionally directed towards all government officers and citizens who would respond to it. Following the pilot study the questionnaire was amended and some wording was changed. The possibility of surveying practices of e-Government implementation by applying a limited number of questionnaires to the Ministry of ICT, ICT Authority, the IEBC and the Judiciary was also examined. This received good positive responses from many government officers and citizens. The survey was considered timely and valuable because Kenya had implemented e-Government system since 2004 and no such study had been performed.

The final questionnaire was divided into two parts and the ratio scaling approach used. Part I concentrated on questions which would identify or categorize respondents; they included their organization, position/title, gender, etc. Anonymity was preserved. Part II was originally designed to measure 32 elements divided into seven critical factors of e-Government systems using an interval response scale. Five point Likert scale questions were used and respondents were supposed to rate their responses. Stakeholders were able to indicate their perception of how well the e-Government systems were run in the government (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree). This means that 1 represents weakness with 3 being moderate and 5 being strength. Therefore, a score of 3 was regarded as the neutrality point to differentiate the success or failure factor.

5. Data Collection and Analysis

5.1 Data Collection

The purpose of data collection was to test and assess the success and failure factors of e-Government application implementation in Kenya. The Ministry of ICT, ICT Authority, the IEBC and the Judiciary have a good number of ICT employees totaling to approximately 2000. The population of interest in this study is comprised of the staff based in Nairobi and other major towns e.g. Mombasa, Kisumu Eldoret and Nakuru to represent the urban setting while the rest of the towns in Kenya to represent the rural setting. This study

focused on the Government to Citizen Domain and therefore chose a small sample from the ordinary Citizens from five major towns of Nairobi, Mombasa, Kisumu Nakuru, and Eldoret (Urban-setting) and other towns as rural setting who were interested in e-Government adoption. From these samples of the stated towns the study chose randomly thirty respondents from the general public. The data gathered was obtained using a structured close-ended questionnaire for a period of three months, from 24th March to 21st June, 2015. The authors distributed 350 questionnaires to the ICT officers and other staff members in the Judiciary, the Ministry of ICT, the IEBC and ICT Authority, Kenya Revenue Authority, Ministry department Agencies and to the general public. 326 responses (93% of total) were received, however 17 responses were disqualified for various reasons such as lack of knowledge of any existing e-Government applications. The remaining 308 responses (88% of total) were accepted as valid (See <Table 1>).

<Table 1> Demographic Information of Respondents

	Variable	Frequency	%
Gender	Female	124	40.3
	Male	184	59.7
Age	18~24	11	3.6
	25~34	140	45.5
	35~44	107	34.7
	45~54	48	15.6
	55~64	2	0.6
Position	ICT Head	37	12.0
	ICT Staff	177	57.5
	PM	82	26.6
	Other	12	3.9
Town of Residence	Nairobi	188	61.0
	Mombasa	10	3.2
	Kisumu	13	4.2
	Nakuru	14	4.5
	Eldoret	32	10.4
	Other	31	16.6

5.2 Confirmatory Factor Analysis

In order to verify whether all questions used in the questionnaire for measuring variables in the research model were suitable as measuring tools, the researcher carried out a factor analysis by AMOS. Confirmatory Factor Analysis by AMOS standard values are recommended that GFI, NFI and TLI be higher than 0.9, AGFI value be more than 0.8 and RMR be lower than 0.05 [7]. The instrument used in this study met almost the required criteria except a part from Infrastruc-

ture factor. The result of this analysis is as shown in the <Table 2>. This analysis enabled to remove five variables from 32 (Management (2), Design (1), Infrastructure (2)) as follow. The remainder is described in <Table 4>.

- A strong consideration of risk in e-Government project (Management) [18]
- Resistance to change from workers during e-government project (Management)
- All e-Government applications do meet the needs of the citizens (Design)
- Security/authentication technologies (Infrastructure)
- A secure and centrally placed Government Data center (Infrastructure)

<Table 2> Confirmatory Factor Analysis

Construct	Ini. items	Final Items	GFI	AGFI	RMR	NFI	X ²	P	Q
DR	4	4	.98	.889	.039	.96	13.8	.001	6.9
SA	4	4	.99	.926	.029	.97	8.8	.012	4.4
MA	6	4	.99	.970	.017	.99	3.6	.162	1.8
DA	5	4	.98	.889	.039	.96	13.8	.001	6.9
CA	4	4	.97	.835	.075	.90	21.6	.000	10.8
IA	5	3	1.0	-	.000	1.0	-	-	-
OA	4	4	.99	.971	.037	.99	3.5	.173	1.8

*DR(Drive), SA(Strategy), MA(Management), DA(Design), CA(Competencies), IA(Infrastructure), OA(Other Resources).

5.3 Convergent Validity and Composite Reliability

The reliability of an instrument refers to the degree to which the instrument is free of random error. It is concerned primarily with consistency and stability of the measurement. Internal consistency tends to be a frequently used type of reliability in the information system (IS) domain [2].

Validity is often defined as the extent to which an instrument measures what it purports to measure and requires that an instrument is reliable, but an instrument can be reliable without being valid [14]. Convergent validity is a function of the association between two different measurement scales which are supposed to measure the same concept, and is achieved when multiple indicators operate in a consistent manner [9].

Bagozzi and Yi [5, 15] recommended that composite reliability (CR) should be equal to or greater than .60, and average variance extracted (AVE) should be equal to or greater than .50. The results of CR and AVE are presented in <Table 3>.

<Table 3> Convergent Validity and Composite Reliability

Item	Standard Estimate	S.E	AVE	CR
DR1	.702	.475	.507	.837
DR2	.791	.330		
DR3	.670	.225		
DR4	.680	.543		
SA1	.590	.652	.501	.790
SA2	.670	.518		
SA3	.750	.657		
SA4	.803	.272		
MA1	.730	.470	.520	.814
MA2	.691	.466		
MA3	.711	.466		
MA6	.752	.500		
DA1	.724	.442	.532	.808
DA2	.650	.408		
DA3	.797	.351		
DA5	.740	.811		
CA1	.665	1.14	.506	.705
CA2	.671	.774		
CA3	.648	.940		
CA4	.643	.378		
IA1	.859	.373	.592	.755
IA2	.922	.196		
IA5	.432	1.02		
OA1	.841	.420	.502	.709
OA2	.816	.389		
OA3	.585	1.27		
OA4	.541	1.10		

*DR(Drive), SA(Strategy), MA(Management), DA(Design), CA(Competencies), IA(Infrastructure), OA(Other Resources).

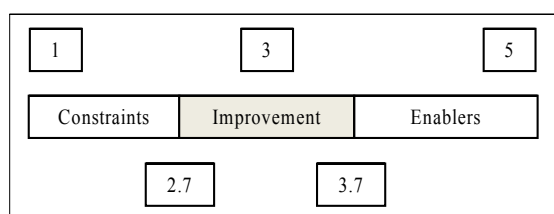
6. Enablers and Constraints Factors in e-Government Implementation

The stakeholder’s overall perception was determined by averaging the respondents’ perceptions of all the constituent variables. This produced an average score of 3.52 as the overall perception of e-Government implementation in Kenya. The factor rating in <Table 4> highlights the observation based on the results of grouped responses of the level of e-Government implementation in Kenya, showing areas of strength and weaknesses calculated by assigning one to “strongly disagree” (weakness, e-Government failure) and five to “strongly agree” (strength, e-Government).

In general, a project is defined to be successful when it is completed within time and budget [17]. However, even project experts may find it difficult to judge success or failure of e-Government project due to its complexity. Our study tried to evaluate project performance in terms of respondent’s perception of using e-Government system. This is due to the fact that

the previous literature [12, 6, 18] did not define clear criteria to judge success or failure of e-Government system or project.

Having discussed this with several numbers of global ICT experts and senior officers who are in charge of e-Government implementation in Kenya and Korea, the authors developed criteria of evaluating the level of e-Government project implementation; total mean score above 3.7 is Project Success, that below 2.7 Project Failure, and that between 2.7 and 3.7 is Partial Success or Failure (see <Figure 3>). For each factor, the model also includes the Zone of Constraint (less than 2.7 of total 5; Failure), the Zone of Improvement (between 2.7 and 3.7 of total 5; Partially Success or Failure) and the Zone of Enabler (greater than 3.7 of total 5; Success).



<Figure 3> e-Government Evaluation Criteria

From this model in <Figure 3>, the Kenyan overall e-Government implementation score (3.52 of total 5) belongs to partial success or failure. From the viewpoint of each factor, the area of weakness is in Infrastructure factor that hence form a constraint or challenge. On the other hand, Drive factor presented the strongest score in terms of e-Government implementation, followed closely by Strategy assessment. They fall under the Zone of Enabler or Success. The remainder Management, Design, Competency, and Other resources fall under the improvement zone to be gradually improved. This means that the Kenyan government should focus her most efforts to improve Infrastructure and then gradually improve Management, Design, Competency and Other resources factors.

The study discusses factor by factor and identifies the weak areas that require improvement for successful implementation of e-Government in Kenya. With regard to Drive factor in <Table 4>, four variables were tested and it's shown that all components scored considerably well. It reflects that there is strong drive both from within and outside government for e-Government implementations in Kenya. The re-

<Table 4> Evaluation Results of Different Factors and their Variables

Factor	Variables	Variable Rating (Average)	Gap (5-Effort)	Factor Rating (Average)
Drive	Strong drive for change in e-Government from outside	3.93	1.07	4.07
	Strong drive from key government officials for reform	3.78	1.22	
	Personal support for e-Government implementation*	4.73	1.27	
	Recognition of government issues*	3.80	1.20	
Strategy	Approved National ICT policy	3.95	1.05	3.89
	National ICT Master Plan	4.11	0.89	
	e-Government strategic plan	3.82	1.18	
	Stakeholder's participation in e-Government strategy development	3.71	1.30	
Management	Clear project responsibility	3.64	1.36	3.56
	Presence of a champion organization	3.88	1.12	
	Stakeholder's involvement in e-Government project	3.60	1.40	
	Coordination of e-Government project*	3.14	1.86	
Design	Incremental/piloting approach	3.66	1.34	3.44
	Quick and feasible objectives	3.69	1.31	
	Stakeholders' involvement in e-Government design development	3.39	1.61	
	Achievement of the intended objectives*	3.02	1.98	
Competencies	Possession of basic computing skills*	3.00	2.00	3.38
	Computer networking skills*	4.21	0.79	
	Training on Database System Design and implementation*	3.22	1.78	
	e-Government sensitization**	3.07	1.93	
Infrastructure	All government have LAN and are interconnected*	2.75	2.25	2.66
	Adequate H/W, S/W and network technologies	2.65	2.35	
	Adequate e-transactions laws*	2.56	2.44	
Other resources	Strong availability of financial resources for e-government	3.08	1.92	3.13
	Long term budget plan	3.25	1.75	
	Government finances 100% of e-government projects**	2.85	2.15	
	Funding from donors**	3.34	1.66	

*survey items added by the authors, **survey items accepted from Shin [18].

search also highlights that key government officials greatly support e-Government implementation and have strong drive for their implementation, the two variables scored with almost similar margin. However, this should not be overlooked instead more effort has to be added in order to achieve 100 % implementation.

Strategy factor performed second following Drive in this study. All the components score fall under the Zone of Enabler (Success). Existence of National ICT Master plan scored 4.11, followed by Existence of an Approved National ICT policy with 3.95, existence of an e-Government Strategic plan with 3.82 and participation of stakeholders in strategy development with 3.71 score. However, some respondents had reservation about participation of stakeholders in strategy development, which means that more effort for improvement is required in this component.

Four components were tested under management factor; Existence of a Champion organization in Kenya scored considerably high with 3.88, followed by Clear project responsibility 3.64, Stakeholder's involvement in e-Government project 3.60 and lastly, Consistence and coordination of e-Government projects scored 3.14. This study has identified one underlying component that hinders successful implementation of e-Government projects. In spite of the presence of a champion organization, it does not coordinate e-Government project implementation among different Ministries. For example, there existed infighting among Champion organizations i.e. ICT Authority, MoICT and the Treasure due to duplicate mandates among them. The reasons behind this could be due poor project management and lack of clear roles and mandates among government ministries and departments responsible for e-government implementation.

All components in Design factor scored under the Zones of Improvement and, presence of quick and feasible objectives scored highest of all with 3.69, followed by other components as shown in the <Table 4>. Therefore, more efforts are required to improve design of projects in order to meet the needs of Kenyans as well as to achieve the well-intended objectives of e-Government applications.

The overall rating of Competence factor was 3.38 as shown in <Table 4>. Many respondents who were interviewed possessed basic computer skills. However, it seems the government has not taken an initiative to sensitize its employees on e-Government. The infrastructure factor performed poorly and only managed to raise an overall rating of 2.66. This belongs to challenge area which incurred failure of e-Govern-

ment implementation in Kenya. The result indicates that there is no adequate law on e-Transactions, little presence of security and authentication technology, minimal presence of hardware, software and network technologies as well as minimal interconnections of government offices. A lot of improvement efforts are required for improvement because infrastructure is the bedrock of e-Government that cannot be ignored under all circumstances.

Another poorly performed factor is funding of e-Government projects. This factor scored an overall rating of 3.13 which falls under the Zone of Improvement. There is an indication that most e-Government projects are funded by donors and private sector and this puts the government in a vulnerable position with regard to control of e-government initiatives. This study has therefore recommended among other things, that the government should take charge of e-Government initiative as is the wish of many respondents and donors to play an oversight role.

Since this study was carried out in one country only, it is also important that the measurement value for each survey item is examined in more detail. All individual mean score can be used to represent the current level of e-Government implementation in Kenya. According to the evaluation criteria in <Figure 3>, a mean score in excess of 3.7 would indicate that the majority of respondents were satisfied with the particular e-Government implementation practice, with the opposite being true for scores of less than 2.7.

An analysis shows that only ten variables exceeded the critical value of 3.7 and two were below 2.7. In particular, all the items in both Drive and Management factors are over 3.7. This means that Kenyan government excels at the drive for change from both top and bottom government officers as well as external stakeholders, while the respondents are satisfied with the availability of Government's vision, strategy and plan of e-Government implementation. Government should take advantage of three items such as Personal support of e-Government implementation (4.73), Computer networking skills (4.21), and National ICT Master Plan (4.11), which attained the highest mean score.

When it comes to the lowest group, both Adequate H/W, S/W and network technologies (2.65), and Adequate e-transactions laws (2.56) were the worst of all the variables in e-Government implementation. Two areas should be improved using immediate corrective action. In-depth study revealed the possible reasons : government officers and citizens can't fully use their laptop and mobile devices due to the lack

of both ICT network and its operating technology, and legal system concerning the transaction of business information.

7. Conclusion and Discussions

E-government was established in Kenya in 2004 after the adoption of the first e-Government strategy [4]. So over the last ten years, the government of Kenya initiated major capital investments such as installation of ICT infrastructure. Development partners formed the biggest percentage of funding and the government contributions usually have been in form of technical and support staff and facilities that included buildings. So far the Government Information Technology investment and management framework has connected all Ministries to the internet under the executive Network [11]. The government has also connected all Ministries to run the Integrated Information Systems (IFMIS) and more others.

However, successful implementation of e-Government initiatives requires careful planning and other issues that take into consideration a number of factors alongside technology [6]. Many projects have failed because they took a technology-centric approach where technology has been seen as the main drive for e-Government development [18]. This study is therefore worthy because it describes the specific success and failure factors and their relevant elements in a particular country for assessing the stakeholder's perception of their e-Government system. But, our study should not be tied only onto the mentioned seven factors which were only identified as critical factors for e-government projects implementation in developing countries. Therefore among other things, the findings of this study highlight the need for further research focusing on more factors other than the ones evaluated in this study.

The research found out that among the main factors, Infrastructure scored very low below the minimum to form a constraint in Kenyan e-Government implementation process. Competence and Funding (Other Resources) did not do well either. In order to address the constraints and improve on competence and funding factors, this study provides a variety of recommendations. First of all, Kenyan government should create clear role and mandate for champion organization. This study found out that there is significant infighting among government Ministries and departments and this could be due to unclear role definition and duplication, it is therefore important for Kenya to give greater mandate to one organization

for instance ICT Authority for implementations of e-Government projects as it was before when the Directorate of E-government was in existence.

Second, the Government should develop project planning and management capacities within government, to enable government to give some direction to, and have some control over e-Government projects. There needs to be a continuous focus on raising the awareness, understanding and skills of those involved in e-Government projects. This must include promotion of the benefits of the projects. In the Kenyan context, the study found out that employees are not well sensitized on e-Government which should not be the case because these employees are the super users of e-Government system hence they need to be sensitized as early as possible.

Third, the government is focused on building tele-communication infrastructure and chooses appropriate technology to its environment. This can be based on building a modern telecommunication infrastructure.

Last, the government should avoid Big Bang approach of project implementation and instead introduce them gradually and systematically in order to avoid resistance among users of the new technology or application. There should be initial goals to pilot-test the hardware, the database and the new procedures before any attempt to build up to full-scale implementation. e-Government projects can be left to drift unless they are well managed. Therefore, e-Government projects must include continuous monitoring, and continuous action to improve the project on the basis of that monitoring.

On the other hand, the outcome of this study can provide a big implication on the policy of any developing or developed country. First of all, It is felt that the government must take a clear and leading role in promoting e-Government initiatives for success to be seen. The study can therefore provide several recommendations for Governments and policy makers in order that they reduce the risk of failure of e-Government projects. The reason is that developing countries may have similar characteristics to the Kenyan context which presents various challenges that affect the successful implementation of e-Government.

Second, this study is casting another meaning for donor countries such as South Korea which are providing ICT support for developing countries. South Korea with the world's best performance in e-government should make much more efforts to provide some business models or software products as well as to build legal systems associated with them which can be operated under the recipient's vulnerable ICT infra-

structure. This mainly requires the donor countries to take into account of developing countries' ICT environment and needs, which is far from the traditional approach to provide only the hardware of ICT products and centers, and its vocational training programs for recipients.

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