

THE CRITICAL ORGANIZATIONAL FACTORS OF E-GOVERNMENT IN KENYA

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Abstract: eGovernment focusses on the use of technology to achieve levels of improvement in various areas of government, transforming the nature of politics and relations between the government and citizens. However, in Kenya, just like in other developing nations, many eGovernment projects have either stalled or failed to meet their objectives due to some key organizational factors. This study therefore highlights critical organizational factors affecting eGovernment projects and the nature of their relationships with eGovernment performance. The study employed cross-sectional survey design. Targeting the entire 18 eGovernment projects implemented through the Information Communications Authority of Kenya since 2005. Both primary and secondary data was collected and analyzed based on response from 217 respondents out of the 300 who participated (72% response rate). At the end, it emerged that out of the various organizational factors hypothesized to predict eGovernment projects Performance, only organizational structure, prioritization of deliverables, and organizational culture are critical in Kenyan context. Others identified in previous studies such as future needs of the organization, power distribution, structure, information system strategy alignment, prioritization of deliverables, and training were also important but not critical.

Keywords: eGovernment; Organizational; Critical Factors; Performance; Projects.

1. INTRODUCTION

1.1 Background of the Study

Globalization has, in the past decade, perpetuated need for inventing and applying technological solutions to service delivery in governments (Cordella & Bonina, 2012). According to the recent UN e-government development index report (EGDI), among the 193 countries surveyed on online provision, 190 had online services. The report concluded that Information and Communication Technologies (ICTs) is continuously gaining recognition due to its ability to promote economic growth and development at government, business and citizens levels (UN, 2014).

In developing countries, the idea that implementation of eGovernment ensures modernization of the public sector, coupled by the current quest for citizenry empowerment and the demand for e-participation changes sweeping the modern world, many governments have continued developing, implementing and improving their strategies to transform government services using eGovernment (Cordella & Bonina, 2012; UN, 2014). However, despite a lot of interest being drawn into eGovernment, the field is criticized for not having a common definition of e-Government (Hu et al. 2009) and also generally lacking clarity and rigor about the factors contributing to its implementation alongside poor treatment of generalization (Heeks and Bailur, 2007). Furthermore, recently, researchers and other stakeholders affected by the e-Government innovation's impacts have started raising concerns on its high reported failure rates (Heeks and Bailur, 2007).

In an effort to comprehensively define eGovernment and address the above concerns, three perspectives have dominantly emerged: technological, organizational and

environmental perspectives of eGovernment. Ahmad et al., (2012) observe that the different conceptualization indicate that eGovernment is a broad concept whose evaluation and measurement, demands exhaustive assessment of each of the perspectives. This study centers on the organizational perspective of eGovernment which focusses on the use of technology to achieve levels of improvement in various areas of government, transforming the nature of politics and relations between the government and citizens (Ahmad, et al., 2012).

The organizational context is a necessity for any eGovernment project as it helps to explain the tangible and non-tangible organizational factors (Ahmad et al., 2012). Researchers have confirmed complex relationships between the organizational factors and eGovernment Adoption, use, and hence eGovernment success. Organizational aspects such as the organizational structure, the presence of innovation-enabling processes such as informal communication and strategic behaviour of top management, quality of human resource, firm size, amount of slack resources of the organization are vital for eGovernment success (Tornatzky and Fleischer, 1990). Consequently, ensuring successful adoption of eGovernment initiative calls to assessment of the contribution each of these organizational aspects have of the performance of eGovernment projects.

1.2 Statement of the Problem

In Kenya, just like in other developing nations, many eGovernment initiatives fail or do not achieve their goals due to some key organizational factors. Currently, Kenya ranked number 119 globally and number seven in Africa, after Seychelles, Mauritius and South Africa who are ranked first, second and third respectively, in eGovernance. Despite their low ranking in eGovernance, African governments support

eGovernment initiatives and appreciate its contribution to the government agenda (Mutula, 2008).

However, after the recent realization that for eGovernment projects in developing and transitional countries, 35% were total failures, 50% were partial failures and only 15% were successful (Heeks, 2003; Schedler and Schmidt, 2004), more questions are raised on the factors affecting success of eGovernment projects. This study seeks to answer this question by assessing the organisational critical factors to the performance of eGovernment in Kenya

1.3 Objectives of the Study

- i) Establish the organisational factors predicting eGovernment projects performance in Kenya;
- ii) Examine the nature of relationships between the organisational factors and eGovernment performance

2. LITERATURE REVIEW

Research has helped to explain the tangible and non-tangible organisational factors influencing eGovernment projects (Ahmad et al., 2012). These include: the organizational readiness in terms of business strategic planning; technical infrastructure; management systems and structures; top management; and quality of human resource (Ahmad et al., 2012). Each of these can either impede or promote eGovernment project performance (Bjorck, 2004). A bureaucratic organisation with a conservative culture raises the issue of resistance to change from new innovation (Ahmad et al., 2012). Therefore, transformation and re-engineering of government processes and activities must be embraced for successful eGovernment (Basu, 2004). Many studies attribute eGovernment failure to a variety of reasons, including: lack of executive and top managers' commitment; employees' resistance to change; lack of skills and training programs; lack of awareness and conceptual understanding; old and inflexible management systems (Karlsou, et al., 2012). The success of e-government initiatives will also depend upon the developed legal and regulatory framework for their operations (Basu, 2004). In general, UN (2014) found out that institutional and organisational weaknesses in the design of policies, the organization of programs and stakeholder coordination jeopardize the long term development of e-government practices.

Favourable organizational structures lead to higher system usage and consequently successful eGovernment implementation outcome (Baker, 2011). The implementation of a new ICT environment may result in some employees losing their authority and power over traditional business processes hence triggering resistance (Doherty and King, 2005). Therefore, favourable power distribution practices would reduce resistance thereby resulting to higher system usage and consequently successful eGovernment implementation outcome. A comprehensive eGovernment strategy is also essential to effectively and efficiently deliver the successful implementation of online public services (Iran et al. 2006). The presence of a well synchronized information system strategy with clearly spelled out future organizational needs to be achieved through ICTs would lead to higher system user support and consequently successful eGovernment implementation outcome (Lee et al., 2008). The paradigm shift and change of culture that is introduced by eGovernment may result in some resistance and failure. There is therefore need for continued training in order to realize eGovernment success (Iran et al., 2006). According to

the UN (2014) countries need to focus on building human capital, including ICT literacy and on bridging infrastructure gaps to provide an enabling environment for e-government development. Visionary strategies and practical implementation plans should follow for effective deployment of sustainable online services (UN, 2014). Oreste, et al. (2005), found that funding facilitates the infrastructure (such as building, technology, human resources) necessary for eGovernment implementation.

3. RESEARCH METHODOLOGY

3.1 Research Design

This study adopted a descriptive cross-sectional survey design. According to Cresswell and Clark (2007), a combined descriptive cross-sectional survey research design is used when seeking to gather information, summarize, present and interpret it for the purpose of clarification. This design was therefore chosen as the study sought personal views, opinions, attitudes, and perceptions about eGovernment critical factors and project performance status.

3.2 Target Population

The study targeted the entire 18 eGovernment projects that had been in place since 2005 and which were implemented through the Directorate of eGovernment (now Communications Authority of Kenya) in Kenya government. The respondents therefore included all the eGovernment project implementers and eGovernment service consumers of the eGovernment services in Kenya.

3.3 Data Collection

The study collected both primary and secondary data. Primary data were collected using survey questionnaires, although interviews and observations were also employed where necessary and possible. Secondary data sources included journals, books and articles addressing the objectives of this study.

3.4 Operationalization of Variables

This study employed quantitative measures using a 4-point likert scale on technological factors indicators as defined by Agresti (2002). The operationalization and measurements of the variables in this study is as shown in Table 1 below.

Table 1 Operationalization and measurements of the variables

THE ORGANISATIONAL FACTORS INFLUENCING EGOVERNMENT PROJECT IMPLEMENTATION, ADOPTION, & E-SERVICE USE		
Construct	Construct Domains	Measures
Organisational Factors	Status before delivery of required results; Organizational structure; Power distribution; System Structure; Information system strategy alignment; Prioritization of deliverables; Resistance to change; Human Capacity; Management skills; Future needs of the organization; Organizational culture; Training; Cooperation/Collaboration;	Nominal & 4-point likert

	Smooth Processes	
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3.5 Data analysis

Data analysis was performed at both descriptive and inferential statistical analysis levels using a mixture of tools available in SPSS. Descriptive statistics involved use of frequency tables, percentages and charts and other measures of variable associations (De Vaus, 2001). Inferential statistical analyses included various correlation and regression tests (Saunders et al., 2003). Factor analysis test were used to group and detect opinions/perception disagreement or changes to help in assigning variables into TOE, failure and success groupings based on their agreements.

4. RESULTS AND DISCUSSIONS

The results are based on response from 217 respondents out of the 300 who participated (72% response rate). Of the 217 respondents 52 were eGovernment project implementers while 165 were eGovernment service consumers.

4.1 Organizational eGovernment Projects Success and Failure Factors

Nine statements on four point likert scale were used to assess the organizational factors affecting eGovernment project implementation. These statements were presented to eGovernment project implementers alone because they are the only lot that directly engaged with the projects implementation process.

- Overall Judgement on Project Delivery of Results-** Majority of the study participants (57%) disagreed with the statement that the project has taken too long to show any meaningful results.
- Organizational structure issues-** Majority of the respondents (79%) supported the statements there exist proper allocation of work roles and administrative mechanisms to conduct, coordinate, and control eGovernment implementation work activities.
- Power distribution-** Majority of the respondents (61%) agreed that there is resistance for fear of government employees losing their authority and power over traditional business processes.
- Structure-** Majority of the respondents (68%) agreed with the statement that due to the horizontal and vertical computerized linkages, there is a great level of flexibility in task-performing to accommodate the new eGovernment system procedures.
- Information system strategy alignment-** Majority of the respondents (57%) agreed that there is proper alignment of strategies between different players for the eGovernment systems success.
- Prioritization of deliverables-** Majority of the respondents (69%) agreed that there is proper prioritization of deliverables to ensure the most strategically significant services are managed and delivered appropriately in time.
- Future needs of the organization-** Majority of the respondents (37%) disagreed with the statement that there exists a strategic plan for eGovernment systems implementation that is being strictly followed to ensure the implementation process caters for the future needs of our organization.

- Organizational culture-** Majority of the respondents (59%) disagreed with the statement that there has been a good organizational environment that encourages smooth and total transformation from manual to eGovernment culture.
- Training issues-** Majority of the respondents (52%) agreed with the statements that there has been enough training for employees and managers to get familiar with working under new eGovernment system circumstances. The details are as shown in table 2 below.

Table 2 Organizational Factors Descriptive Analysis Results

	Total	S. D	D.	A.	S. A.
Overall judgment	The project has taken too long to show any meaningful results	19%	38%	28%	15%
Organizational structure	There exist proper allocation of work roles and administrative mechanisms to conduct, coordinate, and control eGovernment implementation work activities.	4%	18%	65%	14%
Power distribution	There is resistance for fear of government employees losing their authority and power over traditional business processes.	8%	31%	41%	20%
Structure	Due to the horizontal and vertical computerized linkages, there is a great level of flexibility in task-performing to accommodate the new eGovernment system procedures	12%	20%	60%	8%
Information system strategy alignment	There is proper alignment of strategies between different players for the eGovernment systems success	10%	33%	45%	12%
Prioritization of deliverables	There is proper prioritization of deliverables to ensure the most strategically significant services are managed and delivered appropriately in time.	6%	25%	56%	13%

Future needs of the organization	There exists a strategic plan for eGovernment systems implementation that is being strictly followed to ensure the implementation process caters for the future needs of our organization.	8%	29%	49%	14%
Organizational culture	There has been a good organizational environment that encourages smooth and total transformation from manual to eGovernment culture.	10%	49%	33%	8%
Training	There has been enough training for employees and managers to get familiar with working under new eGovernment system circumstances.	13%	35%	42%	10%

4.2 Test of Associations (Correlation) and Factor Analysis for the Organisational Factors

The study also sought to establish the specific factors predicting eGovernment projects performance from the collected data through tests of associations. This was achieved through correlations and factor analysis. The composite variables emerging from factors analysis were then used in regression analysis, presentation, interpretation and discussions of the outcomes.

The goal of factor analysis was to reduce “the dimensionality of the original space and to give an interpretation to the new space, spanned by a reduced number of factors (Darlington, 2004). Guttman-Kaiser rule was applied in retaining only the factors whose eigenvalues were larger than 1 and in total accounted for over 0.5 of the variance (Field 2000). Therefore, items with variance loadings of over 0.6 were retained for further analysis as recommended by Rietveld & Van Hout(1993).

Correlation results

Correlation was first done on all the data items under organizational factors and only those that significantly correlated to each other were further reduced into few principal components. In the end, the factor reduction split the data items into two significant factors considered to significantly affect eGovernment implementation, adoption and use in the research. Results from correlations showed that the overall judgment on the performance of eGovernment (success or failure of eGovernment projects) did not correlate significantly with most of other items apart from two variables, Power distribution and Organizational culture, and was therefore discarded at this stage while the rest were reserved for use in running the factor analysis. This is as shown in table 3 below.

Table 3 Organizational Factors Correlations Contingency Table Results

	Overall judgment	Organizational structure	Power distribution	Structure	Information system strategy alignment	Prioritization of deliverables	Future needs of the organization	Organizational culture	Training
Ov	1	.193	.390**	-.094	-.082	-.120	.125	.310*	-.135
Pearson Correlation									
Sig. (2-tailed)		.174	.0066	.516	.569	.398	.381	.027	.339
N	53	51	49	50	51	52	51	51	52

Factor Analysis Results

The table 4 below shows the eigenvalues (variances of the principal components) associated with each linear component (factor) before extraction, after extraction and after rotation. The rotations converged in two iterations with two significant components with Eigenvalues accounting for 60.494% of the variance explained. Being above the threshold of 50% it indicated that the two-component factor model derived fitted the data appropriately.

Table 4 Organizational Factors Total Variance Explained Results

Component	Initial values			Eigen			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.616	45.202	45.202	3.616	45.202	45.202	2.671	33.394	33.394	2.671	33.394	33.394
2	1.223	15.291	60.494	1.223	15.291	60.494	2.168	27.100	60.494	2.168	27.100	60.494
3	.968	12.104	72.597									
4	.739	9.238	81.835									
5	.516	6.450	88.285									
6	.451	5.637	93.922									
7	.305	3.809	97.731									
8	.182	2.269	100.000									

Extraction Method: Principal Component Analysis.

Items loading greater than 0.6 for each component combined to form the two principal components and the variables that

clustered into each are shown in table 5 below. Cronbach alpha analysis for reliability showed internal consistency. Therefore, the eight items were used in further analysis.

Table 5 Organizational Factors Rotated Component Matrix Results

	Component	
	1	2
Organizational structure	.374	.625
Power distribution	-.795	-.030
Structure	.775	.089
Information system strategy alignment	.514	.356
Prioritization of deliverables	.760	.325
Future needs of the organization	.067	.889
Organizational culture	.178	.800
Training	.651	.327
Cronbach's Alpha	.712	.657

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

4.3 Correlation Analysis between Organizational Factors and the Project Performance

The table 6 below displays the correlation between the individual factors measuring organizational factors and the project performance. From the results, it emerged that only Organizational structure, Prioritization of deliverables and Organizational culture had positive significant relationships with project performance hence reserved for entry into the logistic regression model while the rest (highlighted below) were not, and hence eliminated at this stage. These findings support the findings of the latest survey by the UN on eGovernment which concluded that institutional and organisational weaknesses in the design of policies, the organization of programs and stakeholder coordination jeopardize the success of e-government projects (UN, 2014). Additionally, the results of the study support Ahmad et al., (2012) findings that a bureaucratic organisation culture with a conservative culture raises the issue of resistance to change to new innovations. Therefore, transformation and re-engineering of government processes and activities must be embraced for successful eGovernment (Basu, 2004). It also supports Karlson et al., (2012) finding that old and inflexible management systems with resistance to change would cause eGovernment project failures. The findings also concur with those of Baker (2011) who found that favourable organizational structures lead to higher system usage and consequently successful eGovernment implementation outcome. However the results contradict Doherty and King (2005) findings that favorable power distribution practices would reduce resistance thereby resulting to higher system usage and consequently successful eGovernment implementation outcome. It also contradicts Iran et al. (2006) findings that the paradigm shift and change of culture that is introduced by eGovernment may result in some resistance and failure and therefore there is need for continued training in order to realize eGovernment success is also not supported.

Table 6 Results of Correlation between Organizational Factors and Project Performance

	Overall judgment	Organizational structure	Power distribution	Structure	Information system strategy alignment	Prioritization of deliverables	Future needs of the organization	Organizational culture	Training
Project performance	.136	.419**	-.249	.218	.199	.370*	.161	.522**	.150
Sig. (2-tailed)	.361	.004	.103	.150	.184	.010	.284	.000	.313
N	47	46	44	45	46	47	46	46	47

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

4.4 Organizational Factors Logistic Regression

This procedure was conducted to predict the probability that a participant would give his/her eGovernment project a success performance judgment (rating) given presence/nature of critical organisational factors. Therefore, the outcome variable entered in the model was successful eGovernment project performance which was measured by a binary question Yes/No (0 = failure and 1 = success), and the predictor variable entered in the model was organizational Factors (X). A regression model predicting the logit, i.e, the natural log of the odds of success of e-government project or failure was then run. Table 7 below shows the SPSS output for the initial model which includes only the intercept (the constant). Given the base rates of the two success of e-government project performance options (1 and 0), the system correctly grouped 62.2% of the respondents cases as having reported success of e-government project with only 37.8% of the cases reporting failure of e-government project. No other information was printed out as there were no predictor variables at this stage of the logistic regression process. Therefore, in order to achieve more information details, the best strategy was to perform predictions for every case that the subject will report successful performance of the e-government projects. Using this strategy, a respondent chosen at random for any random project would be correct 62.2 % of the times in judgment translating to 0.62 chances of judging an eGovernment project as successful when it is correctly so.

Table 7 Classification for the Initial Model

Observed	Project judgment	Predicted		Percentage Correct
		Yes	No	
		Step 0 Project judgment Yes	28	
No	17	0	.0	
Overall Percentage				62.2

a. Constant is included in the model.

b. The cut value is .500

Further, table 8 below shows that the 2 Log Likelihood function would drop by 4.963 if a single unit of X predictor was added to the model (which already has the intercept) and the drop is significant (Pvalue = 0.026).

Table 8 Variables not in the Equation

Step	Variables	X ₂	-2 Log likelihood score	df	Sig.
Step 0	Variables	X ₂	4.963	1	.026
	Overall Statistics		4.963	1	.026

Table 9 below shows the block1 outputs where the SPSS added the independent variables Organizational Factors (X) as the predictor. Omnibus Tests of Model Coefficients gives us a Chi-Square of 5.523 on 1 df which is significant as the P-value (.019) was less than 5% (.05). This is a test of the null hypothesis that adding the independent variable to the model did not significantly increase the likelihood of the respondents to give an eGovernment project a success outcome when it is correctly so. A positive and significant Chi-Square statistic indicates that there is a positive relationship between X and the eGovernment project success performance.

Table 9 Omnibus Tests of Model Coefficients

Step		Chi-square	df	Sig.
Step 1	Step	5.523	1	.019
	Block	5.523	1	.019
	Model	5.523	1	.019

Under Model Summary printed in table 4.59 below, the -2 Log Likelihood statistics is shown as 54.144. This statistic measures how poorly or well the model predicts the judgment decisions, the smaller the statistic the better the model. The Cox & Snell R² value of .116 implies that only 11.6% variation in the dependent variable is explained by the model. Alternatively, the Nagelkerke R² output of 0.157 indicates that a larger figure of 15.7% in the dependent variable is explained by the model.

Table 10 Model Goodness of Fit Tests Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	54.144 ^a	.116	.157

Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Table 11 below shows the Hosmer-Lemeshow statistic, which tests the null hypothesis that there is a linear relationship between the predictor variable and the log odds of the outcome variable. A chi-square statistic was then computed comparing the observed frequencies with those expected under the linear model. A non-significant chi-square indicates that there exists a linear relationship and therefore the data fits the model well (Pvalue = 0.533).

Table 11 Hosmer and Lemeshow Linearity Test

Step	Chi-square	df	Sig.
1	5.088	6	.533

From table 12 results, it is noted that overall success rate in classification has improves from 62.2 – 64.4 percent after adding the independent variable.

Table 12 Classification for the Final model

Observed	Project judgment	Predicted		Percentage Correct
		No	Yes	
		Step 1 Project judgment No	24	
Yes	12	5	29.4	
Overall Percentage				64.4

a. The cut value is .500

Table below 13 shows the Regression Coefficients and Odds Ratio. The Wald Chi-Square statistic, which tests the unique contribution of each predictor, holding other predictors constant is also given. The output indicates that the predictor X₂ relationship with the outcome meets the conventional .05 standard for statistical significance. It's 3.211 odds ratio statistic indicates that the chances of eGovernment project success judgment are increased by more than triple for each one point increase in respondent's exposure to or interaction with eGovernment project organizational Factors and the increase is significant (Pvalue =.037).

Table 13 Variables in the Model Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a X2	1.167	.561	4.331	1	.037	3.211
Constant	-4.380	1.932	5.139	1	.023	.013

a. Variable(s) entered on step 1:
X2.

5. CONCLUSION

The results of the study indicate that among the organizational factors hypothesized to influence the success of eGovernment projects, only organizational structure, prioritization of deliverables, and organizational culture emerged to have positive significant relationships with project performance in Kenya. Future needs of the organization, power distribution, structure, information system strategy alignment, prioritization of deliverables, and training had insignificant relationships with performance.

6. RECOMMENDATIONS

Based on the results from the study, eGovernment projects implementers should ensure that the critical success factors that include efficient and effective organisational structure, organisational culture and priorities of the deliverables are availed, to minimise the cases of failure in implementing eGovernment projects.

To researchers and academicians the study recommends that replica studies be done on Kenya's eGovernment projects with larger samples of project implementers for purposes of generalization and eGovernment projects critical success and failure factors theory building.

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