

Evaluation of Institutional Determinants of E-Government Adoption in the National Government Administrative Units in Kenya: A Case of Migori County

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Abstract: Implementation of electronic government initiatives is a major goal in Kenya as evident in the country's National ICT Master Plan of 2018-2023. In 2011, the access and usage of computers was estimated at 8.4 per cent and the use of Internet to access government services was at 6.3 per cent. By 2017, the use of computers was reported by 75.1 per cent of public sector employees and the provision of online government services had increased to 43.4 per cent of the public institutions. However, even with the increased usage of modern technologies by most government institutions, the National Government Administrative Units in Kenya are not keeping pace in adopting new technologies. Paper-based service delivery in the sector has caused inefficiencies which has negatively affected provision of services. This study therefore evaluated the institutional determinants of electronic government adoption in the National Government Administrative Units in Kenya, with a reference to Migori County. The study specifically investigated the role of Top Management Support, ICT Policy Framework, Human Resource Capacity and ICT infrastructure in determining utilization of electronic government in National Government Administrative Units in Migori County. Two theories, the Diffusion of Innovation theory and the Unified Theory of Acceptance and Use of Technology were utilized to guide this study. The study employed quantitative research methodology and descriptive research design. The target population comprised the 340 National Government Administrative Officers in Migori County and a sample of 184 respondents was selected for the study using stratified sampling. Closed-ended questionnaires were used in the study. The questionnaires were validated by the researcher's supervisor and their reliability was above 0.7. The response rate was 90.8%. The collected data was analyzed descriptively for mean, frequencies and standard deviation using SPSS version 22. The study also utilized inferential analysis for correlation and regression to provide complete relationships between the study variables. Regression and correlation results indicated a positive and significant relationship between institutional determinants and adoption of electronic government in National Government administrative units in Migori County. The study therefore concluded that a willing and supportive management, implementation of ICT policy framework, skilled human resource and good ICT infrastructure leads to adoption and smooth running of e-government platforms. Moreover, the study recommended managerial and policy adjustments so as to further enhance

successful utilization of more electronic government programs in National Government Administrative Units.

Keywords: Institutional Determinants, National Government Administrative Units, E-government Adoption

I. INTRODUCTION

1.1 Background to the Study

The world operates on technological innovations that are increasingly changing how governments operate, interrelate, and serve the citizens (Bertot, Grimes & Jaeger, 2012). The innovations that would have been regarded as science fiction a few years ago are now increasingly being used, such as the internet, computers, smart phones, global information networks, virtual reality etcetera. According to Muchira (2016), the use of modern technologies has redesigned industries, cultures, politics and social order in the society. In the public sector, Piret (2015) notes that technology is intrinsic to what governments do, not only in the provision of services such as health, education, infrastructure but also in the other fundamental government features such as power, how it is established, sustained and authorized. Modern technologies fuel the change from bureaucracy-based economies to technology-based societies (Solinthone & Rummyantseva, 2016).

According to Organisation of America States (2013), the growth in the adoption of modern technologies in the recent years has had a significant effect on different characteristics of society and economic undertakings by making every day processes simpler and more effective. The application of e-government technologies has enabled countries to prevent the boundaries of the traditional paper-based system and make the administrative process convenient, efficient, transparent, accountable and responsible (Bertot, 2012).

In the United States, electronic services were established in Mississippi state government as early as the year 2002. Employees would view their payroll as well as tax administration information online through the Access Medium for Public Employees. United Nations' Electronic

Government Survey (2018), found that the USA scores high in application of modern technologies in public service delivery.

In India, the government created the Taskforce for Information Communication Technology and Software Development in May 1998 to promote use of electronic government applications by the Central and the State Governments. Moreover, electronic government has increased at a faster pace and has brought government closer to the people, improved governance and commitment to service delivery to the public (Bjorn & Wahid, 2010).

In Africa, the World Bank's Doing Business Report (2017) revealed that Sub-Saharan Africa shows improvement in many areas of government, but particularly across categories driven by the adoption of electronic platforms and other e-government initiatives. Africa Open Data (2018), found that 35% of the African population is able to access the internet which has made the continent to show visible progress in e-government. Moreover, in African countries, mobile, computer devices and data have become cheaper and affordable. Furthermore, data is more available and speeds of transmission are becoming faster, facilitating the expansion of electronic government technologies in the continent (Kaur & Singh, 2015).

In Kenya, electronic government services were officially established in June, 2004 with the launch of the Electronic Government Strategy to enhance coherence, democracy and accountability within public administration. In 2006 the National ICTs blueprint was established to guide the requirement for development of infrastructure, development of human resource, participation of stakeholders and development of a regulatory framework. In 2013, the ICT Authority was created to co-ordinate and manage all the Government ICT functions, ensure enforcement of ICT standards in Government and supervise electronic communications (GoK, 2019). In 2014 Huduma centres and e-Citizen portals were created to act as one-stop shops where citizens could easily get various government services online. Several developments in electronic government such as myGov, Open Data portals and government websites have enabled the citizens to access various public services more efficiently, conveniently and timely (IST-Africa, 2016).

1.2 Statement of the Problem

The application of ICT by governments improves effectiveness by minimizing time and cost of services provided to the public (Reyes et al., 2016). In Kenya, employment of electronic government initiatives is a major goal as evident in the country's National ICT Master Plan 2018-2023, which envisages Kenya as an ICT-driven country and a globally competing digital economy (Digital Economy Blueprint, 2019). According to National ICT Survey (2018), 75.1 per cent of public sector institutions in the county are using electronic technologies to offer services.

However, even with the increased usage of modern technologies by most government institutions, the National Government Administrative Units in Kenya are not keeping pace in adopting new advancements. Paper-based service delivery in the sector has caused inefficiencies which has negatively affected provision of services (Public ICT Survey, 2016).

As noted by Omariba & Okebiro (2015), implementation of ICT strategies for National Government Administrative Units has not been effective to match the increasing usage of technology in other sectors of the civil service. This is in agreement with Kilelo (2015), who found that even with the improvement of ICT in Kenya, the National Government Administrative Units have continued to experience increased bureaucracies. Similarly, a study conducted by Kipchumba (2015), found that there is need to modernize the national government administrative units so as to enhance service provision in the sector. Thus, the identified challenges prompted an evaluation of institutional determinants of electronic government adoption in National Government Administrative Units in Kenya, with a focus on the County of Migori.

1.3 Objectives of the Study

The objectives of the study were:

- i. To determine the influence of Top Management Support on adoption of e-government in National Government Administrative Units in Migori County.
- ii. To investigate the extent to which ICT Policy Framework influences adoption of e-government in National Government Administrative Units in Migori County.
- iii. To assess the role of Human Resource Capacity on adoption of e-government in National Government Administrative Units in Migori County.
- iv. To examine the extent to which ICT Infrastructure influences adoption of e-government in National Government Administrative Units in Migori County. The application of

1.4 Research hypotheses

The following null hypotheses were used to guide this study:

- H_{01} : Top Management Support has no significant influence on adoption of e-government in the National Government Administrative Units in Migori County.
- H_{02} : ICT Policy Framework has no significant influence on adoption of e-government in National Government Administrative Units in Migori County.
- H_{03} : Human Resource Capacity has no significant effect on adoption of e-government in National Government Administrative Units in Migori County.
- H_{04} : ICT Infrastructure has no significant influence on adoption of e-government in National Government Administrative Units in Migori County.

1.5 Limitations and Delimitations of the Study

Some participants failed to offer information due to the fear of security, privacy and confidentiality. Some respondents were also busy and did not fill the questionnaires on time, hence extending the time taken by the researcher to collect and analyze data. The use of closed-ended questionnaires may have left out some data needed for this study.

However, the respondents were given assurance that the details and data they gave would be made private, confidential and utilized for academic reasons only. The questions in the questionnaires were made simple to ensure that they were answered within the shortest period of time. The questionnaires were carefully constructed and examined to ensure that information gathered is valid and reliable.

1.6 Assumptions of the Study

The study assumed that the respondents cooperated and gave precise information that assisted in drawing valid conclusion of the population that is under study. Also, the study assumed that the questionnaires effectively measured the desired items and that the sample used effectively represented population that was studied.

II. LITERATURE REVIEW

2.1 Theoretical Framework

Adom, Adu & Emad (2018) describes theoretical framework as a structure that consists of existing theories that are used for a particular study. According to Eisenhart (2012), theoretical framework evaluates the theories that are relevant to a given research problem. Diffusion of Innovation (DOI) theory and the Unified Theory of Acceptance and Use of Technology (UTAUT) have been utilized to guide this study.

2.1.1 Diffusion of Innovation Theory (DOI)

The Diffusion of Innovation theory was developed by Rogers in 1962. According to the theory, acceptance of a given innovation depends on perceptions of the innovation and the characteristics of the adopter. The theory also, states that there exist five features which determine adoption of a given technology. The five features are “relative advantage”, “compatibility”, “complexity”, “trialability” and “observability”.

Relative advantage is the measure with which a given technology is regarded as desirable in performance than innovations that existed before; compatibility is the measure with which a given technology is regarded as being congruous with users’ needs, expectations, values and experiences; system complexity is the users’ perceived measure of complicatedness when using technologies; trialability is the measure with which technologies can be tested on a smaller scale for adoption and observability is the measure with which the output of a technology can be seen by its users.

This theory assumes that innovations are always desirable and in every social system, people have different degrees of willingness to embrace the innovations. The innovation users

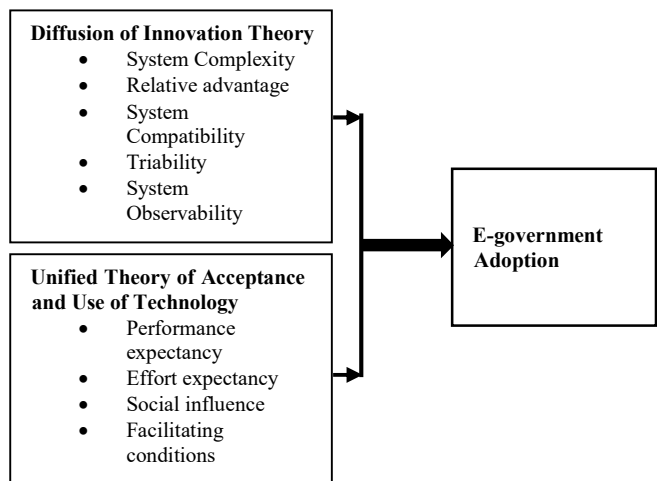
are grouped into five groups of “laggards”, “late majority”, “early majority”, “early adopters” and the “innovators”. The five categories represent 16 percent, 34 percent, 34 percent, 13.5 percent and 2.5 percent respectively of technology users in a given social system.

This theory is limited by lack of specificity and it cannot account for all variables of innovation adoption (Byambaa, Janes, & Corbett, 2015). However, it is relevant to this study because e-government is a new technological innovation adopted by the government of Kenya. A new innovation in the public sector can be affected by aspects like perceived system compatibility, perceived relative advantage, system complexity, system trialability and system observability. Based on the five factors, the study will examine how institutional determinants like IC-T infrastructure and Human Resources Capacity affect electronic government in National Government Administrative Units in Migori County, Kenya.

2.1.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

The unified theory of acceptance and use of technology (UTAUT) was formulated by Venkatesh in 2003 to explain intentions of users to adopt a given technological innovation and their ensuing usage practices. According to this theory, there are four direct factors of uptake of a given technology - performance expectancy, social influence, facilitating conditions and effort expectancy. This theory is based on the assumption that these four constructs account for more than 70% of user’s intentions to adopt a given innovation. The theory is therefore limited by lack of many splinters of knowledge which predict user’s intentions to use new technologies (Bagozzi, 2017). However, the theory is pertinent to the current study since it points out that facilitating conditions such as management support, ICT policies and ICT infrastructure affect e-government adoption. Moreover, the theory explains that performance and effort expectancies affect uptake of innovations by public employees.

Fig. 1. Summary of Theoretical Framework



2.2 Empirical Literature

An empirical literature is a thorough survey of past scholarly research findings so as to answer a particular research question and to provide an overview of a given topic (Saleem et al, 2014). The current study provides an empirical literature on support of top management, ICT policy framework, capacity of human resources and ICT infrastructure on adoption of electronic government. It also identifies the gaps that exist in each of the empirical studies.

2.2.1 Top Management Support and E-government Adoption

Yaser & Alina (2015) examined the contribution of management support to technology acceptance in public organizations in Yemen. The study sought to identify relationship between managerial support and application of technologies in public organisations. The study employed descriptive research design and quantitatively analyzed data collected from 250 respondents. The study indicated significant positive interrelation between support of top management and acceptance of technologies in public organisations. Moreover, the study found that management training in ICT positively influences acceptance of technology in public institutions. The study recommended that management should be qualified in the use of ICT systems to fully support and embrace ICT innovations. However, the findings of this study were limited to Yemeni public organizations.

Sami, Noor & Hassan (2018) investigated support of top management and acceptance of information technologies in Malaysia's public sector. The study specifically sought to identify the success and determinants of application of information technologies by public sector employees. The study utilized descriptive research design and data obtained from 357 respondents was analyzed by SEM technique. The study revealed that support of top management is an essential factor in motivating adoption of technologies. According to the study, top management should support adoption of any technology as it could enhance production and work processes. Moreover, top management should make appropriate technology usage decisions in order to facilitate users' perceived usefulness and acceptance. The study recommended that top management needs to ensure that technology adopted is useful and easy to use in order to encourage its users to accept and subsequently adopt it. The study used SEM analysis, therefore there is need to use other analysis techniques in similar studies for comparative analysis of the study findings.

Amini & Bakri (2015), researched the contribution of top management behaviours on application of technology by small and medium-sized business firms in Iran. Specifically, the authors identified four top management behaviors: motivator, vision setter, task master and analyzer, and their role on the usage of cloud computing by firms in Iran. The study employed descriptive design and SEM method to analyze data obtained from 50 respondents. The study showed that top management directly and positively affect the use and

adoption of modern innovations such as cloud computing. The study further showed that management which recognizes the benefits of a given technology can likely assign the required resources for its use and encourage the organisational members to embrace it. The study recommended that managerial behaviours should perform invaluable role in acceptance of new innovations in any organization. The study, however, utilized a smaller sample which could not give clear generalizations of relationships between study variables.

Jagero & Achieng (2014) conducted an investigation on the interrelation between management support and usage of Computer Integrated Model (CIM) technology by small enterprises in Kisumu East district, Kenya. The researchers determined to assess how management commitment, management openness and management attitude influence computer integration in the Small Enterprises. Descriptive survey design and 295 respondents were used for the study. Analysis was conducted through quantitative and qualitative approaches. The study results indicated that managerial support is essential in application of CIM in the financial forecasting by small enterprises. Moreover, in agreement with the study by Sami, Noor & Hasan (2018), the study established that readiness of management support acts as a product champion in the process of implementation of Computer Integrated Model in the financial forecasting. The study concluded that if a manager and organization staff has a positive attitude towards embracing implementation of technology, then it influences the organisation to adopt it. The research was however conducted in the private sector and a related research should be done in public sector in order to correlate the results.

Odero & Ndolo (2019) investigated the extent to which management commitment relates with usage of electronic procurements in the devolved government unit of Kakamega, Kenya. The research employed descriptive research design and data was obtained from 89 respondents. The data was analysed descriptively and inferentially. The results revealed that commitment of managers has determining effect on assimilation of electronic procurement technology in Kakamega County. Moreover, the study reported that managers should be involved in formulation and implementation ICT policies for effective adoption of e-service initiatives. Managers should provide finance, technology, human and time resources needed for adoption of innovations. The study recommended that management needs to set baselines, goals and strategies which are necessary for adoption and employment of electronic procurement in county governments. The study was however limited to Kakamega County.

Dong & Neufeld (2016), studied the role of top management support as a significant driver of usage of enterprise systems in Canadian universities. The intention of the research was to uncover the supportive actions managers engage in implementation of enterprise systems. The authors utilized analysis of indepth case study of Canadian universities and

obtained primary data from 378 respondents using questionnaires and analyzed the data descriptively. The study results found that various management support practices exercise several influences on the realisation of system outcomes. The study further expressed that employee skills and effective security capabilities are factors that are positively influenced by management support of use of enterprise systems. According to the study, management support such as provision of resources, funds, staff training and vision sharing enhances receptivity of a new technology in an organization. The study recommended that top management needs to adjust their support so as to realize the desired outcome. However, the results of this research were limited to the Canadian universities.

Burton & Deschamps (2012), studied the role of managerial influence on adoption of modern technologies in USA. The study determined to find the level to which managerial innovativeness, task subjective importance, task related skill, technology related skill and job performance affect adoption of new technologies. Descriptive research design was utilized. The research used a sample of 708 participants and analyzed data quantitatively. From the findings, 64% of the participants noted that effective management support influences adoption of ICT strategy significantly. The study reported that there exist a positive relatedness between sophistication of management's view on technology and its application by an institution. The study recommended that management needs to consciously monitor implementation process through advertisement and provision of infrastructure and staff motivation to adopt an innovation. The study findings were however limited to the USA and there is need to conduct similar studies in the public sector of other countries.

2.2.2 ICT Policy Framework and E-government Adoption

Palvia & Baqir (2015) reviewed ICT policies in developing nations, a case of Pakistan. Specifically, the study sought to examine how ICT policy designs affect ICT implementation processes and the actuality-design gaps. The study obtained secondary data from government policy reports and documents while primary data was obtained from 35 citizens and 53 government employees and utilized qualitative data analysis technique. The study revealed that there are wide gaps in policy designs and implementation in Pakistan and other developing countries. The study reported that the policy gaps have negatively affected development of electronic government in low income countries. Moreover, the authors established that policy gaps have created challenges for e-service providers in developing nations. The study recommended that ICT policies should encourage involvement of public officials, citizens, business and institutions in the design of implementation procedures to reduce design-actuality mismatch. This study was limited because it utilized qualitative analysis only.

Lubua (2017) examined the link between e-government and ICT legislative framework. The study specifically investigated the role of ICT policies and practices on e-service usage in

Tanzania. The study utilized secondary data from National Policy for ICT2003, Electronic-Government Strategy 2013, Online and Postal Communications Policy 2010, Tanzania Communications Authority Act 2003, National Security Policy 1970 and the Newspaper Policy 1976. The researcher found that although the legislations had promoted the use of ICT in Tanzania, some clauses were found to limit the use of ICTs for improved government of citizens and public institutions. The study reported that inefficient policies negatively affect implementation of electronic government efforts in Tanzania. The study recommended that ineffective policies needs to be amended to increase the pace of ICT adoption by citizens and public officials. The study results were however limited to Tanzania.

Kyobe & Okongo (2018) cited ICT policies as determinant of implementation of electronic government strategies in low income countries, a case of Kenya. The study aimed to uncover the level to which awareness of ICT policies and ICT strategies by public service officers affect ICT projects in the Kenyan Public service. The study obtained data from 340 public service officers in Kenya and employed descriptive statistics for data analysis and Structural Equation Modeling to develop the study model. The study found that 64 % of the participants were very aware of existence of ICT policies for public services. However, 62 % were not informed of any electronic government strategy, which negatively impacts electronic government implementation in low income nations. The researchers established that inadequate awareness of ICT strategies and policies negatively affect implementation of online government programs. Moreover, public service officers need to understand variables that constitute public value of e-services to facilitate adoption of electronic government. The study recommended that governments should provide requisite capacity for citizens to be engaged in ICT policy development. The study used descriptive analysis only. A related study needs to be conducted using inferential analysis to compare findings.

Muthoni (2015) similarly investigated government ICT policy as a factor influencing electronic government adoption Kenyan public institutions. By utilizing a sample of 150 respondents and descriptive statistics to analyse data, the research identified that utilization of electronic government is directly affected by ICT policies. This is because ICT policies streamline all the activities of implementation of electronic government. Moreover, the researcher reported that e-security factors and e-government adoption. The study recommended that development and regular reviewing of existing ICT policies, standards, rules and regulations to enable the government keep up with pace of the requirements for online government adoption in public institutions. However, the study was limited to ICT officers in government ministries.

Asare-Nuamah & Agyepong (2016) examined the legal framework and policies for electronic government application in Ghana. The study reviewed the various policies that facilitate e-government adoption and the strains faced by the

policies in uptake of electronic government in Ghana. The study utilized secondary data from journals, newspapers, magazines and government websites. Qualitative technique was utilized to analyze data. Results of the study reported that various ICT frameworks and policies facilitate e-government but their implementation is negatively affected by political, cultural, legal and social constrains. The study further indicated that for effective achievement of the goals of e-government, policy framework should serve as the bedrock in every stage of implementation of electronic government initiatives. Thus, the study recommended that agencies responsible for electronic government implementation need to be well resourced, create mass awareness of e-government policies and initiatives in order to enhance and increase citizen's interest and engagement in the implementation process. The study employed qualitative analysis, therefore there is need to use quantitative analysis in a related study.

Nderitu and Kimile (2017), identified ICT policy as a factor determining position of electronic government in Kenya. The researchers utilized theoretical approach by reviewing literature on electronic government adoption in Kenya. Specifically, the researchers utilized the Electronic Government Development Indicators and Network Readiness Indicators for the research. The study found that Kenya had made a major progress in e-government adoption but inadequate ICT policy hampers implementation of electronic government strategies. Moreover, the study found that a facilitative policy framework ensures that agencies do not work in independently during electronic government adoption. The study recommended that governments need to develop ICT policies to facilitate collaboration, co-ordination and communication between government departments and institutions in order to discourage departments from working in isolation. The study, however, relied on secondary data only.

Okemwa (2016) cited policy and legal framework as an incentive for electronic government take up in selected devolved governments of Kenya. The study employed descriptive survey and used closed and opened questionnaires to compile data from 200 respondents. By utilizing frequencies, correlation and regression analyses the study found that availability of adequate and strategic policy framework is important in ensuring equal access to electronic government services in Kenya. Moreover, the study found that political environment significantly influences ICT policies which in turn affect e-government implementation. The study noted that legal framework, policy base and strategic frameworks are pivotal in the success of an electronic government strategy. Furthermore, inadequate legal framework was found to be major drawback in the usage of electronic in devolved institutions. The study recommended that sound policy plans should be put in place to cover all areas of electronic government implementation. However, the scope of the study was broad, since it was conducted across many counties and it used correlation only for inferential analysis.

2.2.3 Human Resource Capacity and E-government Adoption

Wangari, Nyonje & Opiyo (2018), investigated the impact of human resource competence on adoption of electronic government for provision of services in Kajiado County in Kenya. The research utilized descriptive research design. The researchers collected data from 335 respondents by questionnaires and interviews. The correlation and regression results indicated that human resource capacity significantly influences e-government implementation. The researchers further indicated that high levels of ICT illiteracy contribute to resistance to change among employees in Kajiado County. Moreover, institutional and individual capacity can be improved by integrating human resources in the electronic government implementation process. The authors recommended that there is need to develop employee training programs which should be preceded by identification of employee needs in regards to the application of ICT. The study results were however limited to Kajiado County.

Kiplangat, Shisia & Charotich (2015) examined the link between employee competencies and application of electronic commerce programmes in SMEs in Kericho county, Kenya. The researchers aimed to investigate the role of attitudes, level of prioritization, level of training and leadership style among owners and employees in the use of e-Commerce strategies. The study which used a sample of 229 respondents and descriptive statistics for data analysis revealed that employee competence determines the use of electronic Commerce to a larger extent. According to the study, collective skills and knowledge should form part of e-strategic initiative for both employees and SME owners to enable them to delve into the utilization of e-commerce. The researchers also found that training in electronic-commerce training for Small & Midsized Enterprise owners and employees is necessary for adoption of modern technologies in e-commerce. The authors recommended that recruitment of ICT-skilled staff and provision of expertise and resources are necessary for e-commerce adoption. However, the study was limited to the private sector.

Onganga (2012) identified human resource capacity as determining factor of electronic government use in Kisumu County in Kenya. The study aimed to identify level of usage of electronic government and aspects of electronic government approaches in municipal authorities in the county. The study utilized statistical survey and analysed data from 71 respondents quantitatively. It found that human resource capacity is strongly linked to success of electronic government usage behaviour. Moreover, work management and process systems in the public service should be oriented to support the use of new public management technologies. The study recommended that for successful achievement of electronic government objectives, the government should ensure that public employees constantly interact with ICT facilities to enable them to handle ICT related tasks without phobia. However, the study utilized descriptive statistics only

for data analysis which could not give clear relationship between variables under study.

Mburugu, Toroitich and Waweru (2017) studied the role of employee expertise on usage of electronic procurement in various devolved governments in Kenya. The study intended to determine the level to which staff training, employee qualification and change management programs influence the use of electronic procurement in the Kenyan local governments. Descriptive research design was utilized for the study. The authors collected data from 30 respondents and employed both inferential and descriptive statistics for data analysis. Results of the study identified that personnel expertise has significant and remarkable influence on administration of electronic procurement in the devolved government. The researchers established that guide manuals for employees are necessary for implementation of electronic procurement systems. Moreover, the study indicated that employing qualified staff and training staff on electronic procurement systems facilitates the use of online procurement. The study recommended that county governments should train staff, avail the required infrastructure and guide manuals in order to enable staff to carry out their electronic procurement operations. The study however was limited to e-procurement only.

Mulwa (2016) similarly cited human resource capacity as a determinant of ICT employment in service provision by the Kenyan devolved governments. The research used descriptive design and 64 respondents. The findings reported that capacity of human resources and take up of ICT for delivery of services are positively associated. Also, this study indicated that unreliable information systems affect adoption of electronic government by the government employees. Moreover, the researcher found that higher education level, extra work experience, development and training significantly influence adoption of ICT in the devolved governments in Kenya. The study recommended that government needs to examine e-readiness in the country, train personnel on ICT and improve the existing data systems so as to promote electronic government adoption. The study, however, was carried across many departments in Kitui County which made its scope too broad.

Njihia & Makori (2015), identified human resource competence as a factor influencing adoption of electronic financial systems in Kenyan public service. The researchers specifically aimed to examine the degree to which human resource competence influences usage of integrated financial management system in the National treasury. The research utilized stratified sampling to collect primary data from 80 participants and secondary data from journals, periodicals, magazines and government reports. By employing correlation and regression analyses, the researcher found that human resource capacity is positively correlated with effectiveness of IFMIS in National Treasury. The study confirmed that availability of technical staff in public organizations is important for planning and success of e-government

strategies. Public employees engaged in the initiation, execution, monitoring and controlling of new technologies are more likely to embrace the innovations. Moreover, the researchers suggest that the public sector employees are likely to utilise e-government if the leadership promotes adoption of technology in the organization. The researchers analyzed data from a smaller sample representing 6% of the total population. This could not give reliable generalizations of the population under study.

Galve-Gorriz & Gargallo (2010) conducted a research on the association between human resources and the communication technologies in Spain. The study utilized descriptive research design. Data was collected from 1269 Spanish firms and analyzed quantitatively. The study results indicated a strong association between take up of ICT and human resources in the firms. The findings also indicated that offering specific ICT training to employees enables them to use the potential of ICT, which then improves the performance capabilities of an organisation. According to the study, managing a technological change needs a corresponding change in human resource capacity. The study recommended that support should be given to the mutual relationship between technology adoption and human resources to enable employees to optimize implementation of electronic initiatives in an organization.

2.2.4 ICT Infrastructure and E-government Adoption

Penina (2015), identified ICT infrastructure as an element of electronic-government services in Narok county in Kenya. The research used case study research design. The study obtained primary data from 50 respondents. Data was analyzed quantitatively. The findings indicated that lack of advanced and secure technical infrastructure was a major reason why the county is reluctant to fully adopt electronic government. Furthermore, the lack of integration of systems negatively affects electronic government services. ICT systems need improvements further to accelerate sustainable development of electronic government services. The author recommended that for effective adoption, electronic government services should be encouraged not just as computerization of government operations but also as a reform process. The study utilized descriptive analysis only which could not give valid results to a greater extent.

Mulubi (2016) examined establishment of electronic apparatus in Nairobi County in Kenya. The research specifically determined to investigate role of ICT infrastructure as a facilitating condition in usage of electronic government in Nairobi. The study employed descriptive design and questionnaire tools to obtain data from 384 respondents. Empirical results indicated that availability of infrastructure has the strongest association with electronic government usage, indicating that infrastructure as a facilitating condition has sufficient role on behavioral desire to adopt electronic government services. The researcher further reported that the relationship between electronic government adoption and result expectancy, group influence and work expectancy are

statistically significant. The study concluded that for successful electronic government implementation, ICT support infrastructure such as electricity, Networks and accessible government websites are necessary in every ICT implementation stage. The study, however utilized the UTAUT model which is not exhaustive in examining e-government adoption factors.

Rateng (2012) conducted an analysis of ICT infrastructure and implementation of online government initiatives in Kisumu county in Kenya. The investigator employed descriptive design. The study obtained data from 64 respondents and analyzed data by descriptive statistics. The study found that physical ICT infrastructure such as computer technologies play important role at all operational levels in an organization by enabling employees to manage and conduct their daily operations more effectively and efficiently. The study also found that ICT infrastructure promotes adoption of online services by enabling employees to minimize delay time during delivery of services. Moreover, customized ICT infrastructure for specific functions are required to scale electronic government services faster in public organizations. The study recommended that the government needs to purchase new technology equipment in order to offer effective and citizen acceptable electronic government services. The findings of the study were limited to local authorities in Kisumu County.

Kibugi, Wambui & Onyango (2017) assessed effect of infrastructural investment on application of ICT in Kenyan Public hospitals. Specifically, the study determined to examine how health information systems have influenced delivery of services in sub county referral hospitals in Kenya. The researchers utilized cross-sectional research design and data gathered from 98 medical personnel was analysed descriptively. The study outcome reported that inadequate ICT infrastructure negatively affects ICT implementation in Kenyan public hospitals. Moreover, the study noted that provision of support infrastructure such as reliable electricity, internet connection, physical and software equipment and accessories are effective in enhancing adoption of ICT in public institutions. Furthermore, maintenance of ICT equipment is important for continued application of electronic systems in public health sector. The authors recommended that managers should ensure that there are adequate resources for ICT applications in the health sector. The findings were however, limited to sub-county hospitals in Nakuru County.

Mensa (2019) investigated ICT infrastructure as an element influencing university students' desire to employ electronic government innovations in China. The study applied descriptive research design. The research obtained data from 369 respondents and utilized descriptive analysis. The research identified that availability of ICT infrastructure significantly predicts the university students' usage of electronic government applications. The findings further showed that institutional values significantly affect electronic government adoption. Moreover, the study indicated that the trust level in the ICT resources translated into greater usage of

electronic applications. Moreover, adequate facilitating conditions like right infrastructure and managerial commitment have positive effect on electronic government services. The study recommended that creating enabling environment by provision of the right infrastructure and other ICT resources can encourage people to utilize e-government services. However, the study employed descriptive analysis only.

Amit, Arindum & Ravij (2018) evaluated ICT infrastructure as a determinant of usage of electronic-government in India. The study used exploratory research design. Primary data was obtained from a sample of 49 e-government users and analyzed through qualitative analysis. Secondary data was compiled from empirical reviews of existing studies. The study results revealed that facilitating conditions like adequate infrastructure and services support are major determinants influencing the utilization of electronic government in India. The study also found that to enhance utilization of electronic systems by people, the government needs to provide electronic infrastructure with relevant information, well structured design, content and features. Moreover, awareness of such infrastructure by citizens was found to increase approval and subsequent use of electronic-government services. The study recommended that the government needs to pay attention on improving both ICT infrastructure and other supportive facilities like electronic payment facilities so as to enable electronic government popular. However, the sample used in the study was small.

Egoze, Sanjay & Ricardo (2014) examined relationship between Computer infrastructure and ICT utilization in Nigerian public universities. The research utilized descriptive design. The study utilized descriptive and inferential analysis to analyse data gathered from 452 respondents. It found that availability of Computer infrastructure facilitates application of electronic services in Nigerian government universities. Moreover, the study indicated that the use of ICT resources promote efficiency in public universities and is extensively used for record keeping, document processing and general administration. The study further identified that in many areas of the learning institutions, ICT infrastructure is lacking and utilization of electronic services is still low which limit service provision by the universities. The study recommended that implementation agencies need to take action to ensure adequate adoption of electronic services. The findings of the study were limited to Nigerian public universities.

2.3 Research Gap

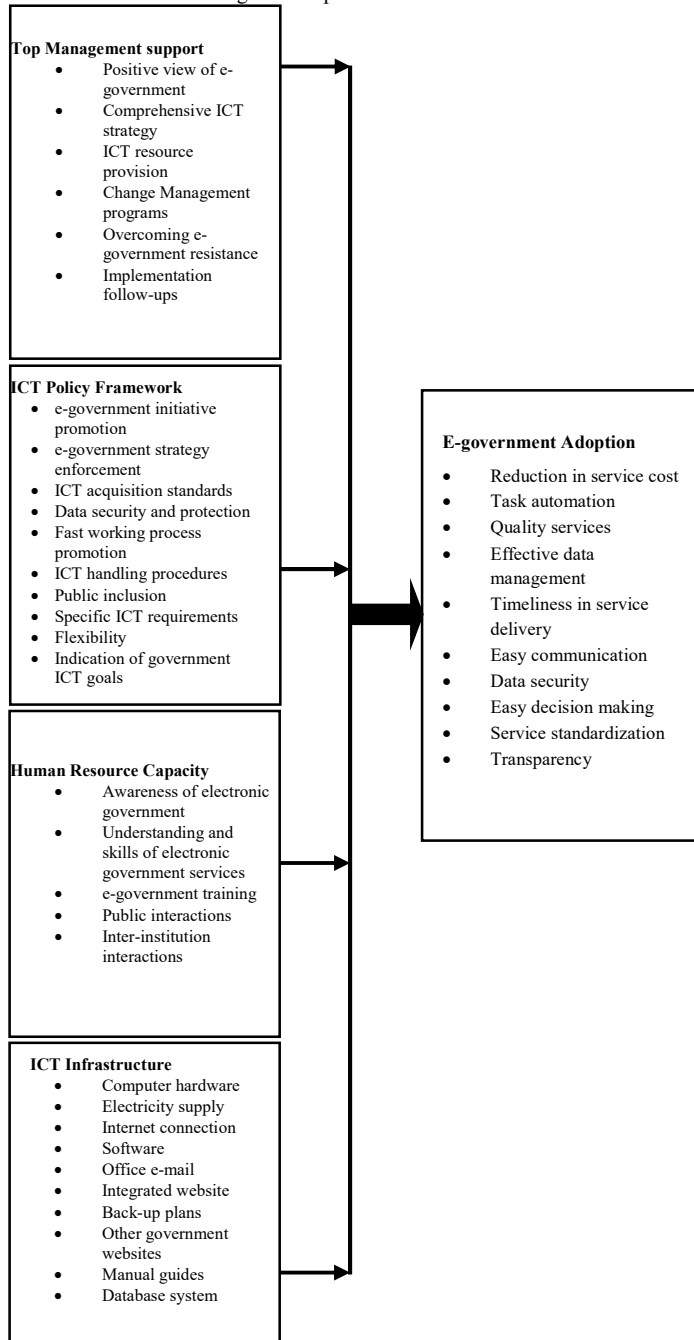
The reviewed studies have revealed that scant studies have been carried out to determine electronic government adoption in the National Government Administrative Units in Kenya. The only available research by Kipchumba (2015) that attempted to uncover the challenges facing e-government in the provincial administration in Kenya was confined to the use of internet and telephone services and it did not include support of top management, ICT policy framework and human resource capacity as critical determinants of electronic

government adoption in national government administrative units, that this study intends to investigate.

2.4 Conceptual framework

Kothari (2004), notes that conceptual framework is a diagrammatical concept which indicates how study variables connect with each other. In this study support of top management, ICT policy framework, human resource capacity and ICT infrastructure are independent variables whereas electronic government adoption is the dependent variable. Electronic government is characterized by task automation, quality services, timeliness and cost reduction.

Fig.2. Conceptual Framework



II. RESEARCH METHODOLOGY

3.1 Research Design

Saleem, Shabana & Sadik (2014) describes research design as the working order for gathering, analysis and interpretation of data obtained in a way that improves the importance to the motivation of a study. This research adopted descriptive design as it intended to examine the institutional determinants of electronic government in National Government Administrative Units in Kenya, with a reference to Migori County. According to Akhtar (2016), descriptive research design describes a phenomenon the way it exists and is used to find information on a particular issue in group of people. Moreover, Orodho (2015), states that descriptive research design lets researchers to collect detailed information, analyze, interpret and present for the purposes of explanation. Furthermore, descriptive research design utilized in this study was carefully designed to make sure that all needed information of the study is collected, analyzed and interpreted without errors.

3.2 Location of the study

This research was undertaken in Migori County. Migori County is among the Kenya’s 47 counties established by the new Constitution (2010). It has land area of 2,597km², 478 km² of water surface and a population of 1,116,436 (Census Data, 2019). The age distribution in the county is 0 to14 years 49%, 15 to 64 years 48% and over 65 years 3% (KNBS, 2019). The county is bordering Homabay County towards the North and to Northeast by Kisii, to Southeast by Narok, to South West by Tanzania and to the West by Lake Victoria. Administratively, Migori County has 8 sub-counties: Nyatike, Uriri, Kuria West, Suna East, Rongo, Kuria East, Suna East and Awendo. The County has 23 divisions, 88 locations and 202 sub- locations.

3.3 Target population

Mensa (2019) posits that a study population is a collection of people or objects possessing similar and noticeable features. The target population in this research comprised of National Government Administrative Officers (NGAOs) which included Sub-County Commissioners, Assistant Sub-County Commissioners, Chiefs and Assistant Chiefs in Migori County. The table below represents the categories and size of the population that was studied.

Table 1: Target Population

Category	Population
Sub-County Commissioners	8
Assistant Sub-County Commissioners	23
Chiefs	96
Assistant Chiefs	213
Total	340

3.4 Sampling procedures and techniques

Michael (2011), outlines that a sampling procedure is an activity in which a group of people are selected for a research so that those selected represent the whole population from which they are obtained. Given that the target population for this study was heterogeneous, it was divided into 5 strata according to their categories in Table 1. The study then utilized stratified sampling to obtain the needed sample size for the study.

3.5 Sample Size

As explained by Lavrakas (2011), sample size is the representative figure of a population from which data is gathered. This study utilized Yamane (1967) formula to obtain the required sample for this study. The size of the sample was obtained as follows;

$$n = \frac{N}{1+Ne^2} \text{ where:}$$

n = Size of the sample

N = Size of the target population

e = Level of confidence at 95 % (5%=0.05)

$$\frac{340}{1+340(0.05)^2} = 184$$

Table 2: Sample Size

Category	Population	Proportion	Sample Size
Sub-County Commissioners	8	$(\frac{8}{340}) \times 184$	4
Assistant Sub-County Commissioners	23	$(\frac{23}{340}) \times 184$	13
Chiefs	96	$(\frac{96}{340}) \times 184$	52
Assistant Chiefs	213	$(\frac{213}{340}) \times 184$	115
Total	340		184

3.6 Construction of research instruments

According to Tan (2013), a research instrument refers to a research measurement tool prepared to collect data for a given topic of research. The researcher gathered data using closed-ended questionnaires. The questionnaires were constructed using a 5 point agreement Likert Scale with: 1 to show “strongly don’t agree with case”, 2 to “disagree with case”, 3 “not sure with case”, 4 to “agree with case” and 5 to “strongly agree”. The questionnaires were constructed such that the first part comprised of the respondents’ demographic data of education, age, gender and experience in service. Second part consisted of the research objective on Top management support and its influence on application of electronic government by NGAOs. Third part dealt with the second research objective on ICT Policy framework and its influence on application of electronic government by NGAOs. The fourth part dealt with the third research objective on Human Resource capacity and its influence on application of electronic government by NGAOs. Fifth part dealt with the

fourth research objective on the role of ICT Infrastructure on application of electronic government by NGAOs while the sixth part dealt with adoption of Electronic government.

3.7 Testing for validity and reliability

3.7.1 Instrument Validity

Yue (2016) states that validity is the level of accuracy of a research tool in measuring what it is supposed to. One of the demerits of questionnaires is that it can offer opportunity for ambiguous replies or omissions, especially when questions are not easily understood. As noted by Kendra (2019), it is essential for research instruments to be valid for the findings to be accurately interpreted. Therefore before the research instruments were used for this study, a sample was checked by the researcher’s supervisor to verify if they were valid for the study and to improve the clarity and content of the questions.

3.7.2 Instrument Reliability

According to Rovezzi (2018), reliability refers to consistency of a research tool in measuring what it is intended to. The researcher employed 10% of questionnaires to determine their reliability in a pilot study in Kisii County. This enabled the investigator to identify possible errors and mistakes of inconsistency and ambiguity in responses. Cronbach’s reliability alpha coefficient scores (Cronbach, 1951) determined whether the research instruments were reliable. According to Keith (2017), the acceptable reliability for each instrument scale has an alpha value of 0.70 and above. Items with alpha coefficients less than 0.70 were rejected. The following formula was used for Cronbach’s reliability alpha:

$$\alpha = \frac{N\bar{C}}{\bar{V} + (N-1)\bar{C}} \text{ where:}$$

α = Cronbach’s reliability alpha

N = Items in the questionnaires

\bar{V} = Average Variance

\bar{C} = Average covariance between items pairs

The results from the pilot study justified the use of the data for further analysis because all the values of Cronbach’s alpha were more than 0.70 as shown in Table 3 below.

Table 3: Instrument Reliability

Variable	Number of items	Cronbach’s Alpha	Comments
Top Management Support	10	0.839	Reliable
ICT Policy Framework	10	0.783	Reliable
Human Resource Capacity	10	0.767	Reliable
ICT Infrastructure	10	0.871	Reliable
E-government Adoption	10	0.725	Reliable

3.8 Data collection methods and procedures

Research permit was first obtained from Mount Kenya University Ethics Clearance Committee and the National Commission for Science, Technology and Innovation (NACOSTI). Thereafter, research permit was obtained from Migori County Education Office for clearance to carry out research in the County. After all the permits were obtained, the questionnaires were handed to sub-county commissioners, assistant sub-county commissioners, chiefs and assistants chiefs. Collection of data took 3 weeks after which data analysis was done.

3.9 Data analysis techniques and procedures

After gathering data, it was cleaned up and organized. Descriptive statistics was employed to analyse gathered data. The study also analysed data through correlation and multivariate regression. Tables, charts, graphs and figures were used to present the study results. Statistical Package for Social Science, Version 22 was utilized in the coding, processing and tabulation of data. The Regression model for this study was thus:

$$Y = \beta_0 + \beta_1X_1+ \beta_2X_2+ \beta_3X_3+ \beta_4X_4+\epsilon$$

Where:

Y – E-government adoption

β_0 – Constant variable

$\beta_1, \beta_2, \beta_3, \beta_4$ - Regression coefficients

X_1, X_2, X_3, X_4 – Top Management support, ICT Policy Framework, Human Resource Capacity and ICT Infrastructure respectively.

ϵ – Error term

3.10 Ethical considerations

Pryta (2016), notes that ethics in a research is a major element that promotes authentic information, truth and prevention of errors during the research process. The researcher requested for authorization and approval in every step of the study. Plagiarism was kept below 20 % as required. Information and data obtained in the field was utilized for educational reasons only. Participants’ details and responses were made secret and confidential. Also, the researcher ensured that bias and data forging was avoided during the whole period of study. The researcher obtained informed consent from respondents before including them in study.

IV. DATA ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Response Rate

Out of one hundred and eighty-four questionnaires, one hundred and sixty-seven (167) were completed and returned translating to a response rate of 90.8% as indicated in Table 4 below.

Table 4: Response Rate

Questionnaire	No.	Percent
Given out	184	100
Returned	167	90.8

As confirmed by Mugenda & Mugenda (2003), 90.8% is a good response rate since the threshold considered sufficient for analysis and reporting is at 50%. The researcher was able to achieve the response rate because the respondents were specific targets and could easily be reached during and after the questionnaires were distributed.

4.2 Demographic Proportions of Respondents

4.2.1 Respondents Gender

The study identified the gender distribution of the respondents. This assisted the researcher to determine gender balance within the National Government Administrative Units. Table 5 shows the distribution of respondents by gender.

Table 5: Distribution of Respondents By Gender

Gender	Frequency	Percent
Male	124	74.3
Female	43	25.7
Total	167	100.0

The results indicated that 74.3% of the respondents were males while 25.7% were females, implying that the National Administrative Units is dominated by the male.

4.2.2 Respondents’ Age Profile

The respondents were categorized into four groups as indicated in Table 6 below. 6.6 % of the respondents were aged below 30 years; 13.8% were between 30-34 years; 33.5% were between the ages of 35-44 years; 31.7% were of the age group between 45-49 years while those above 50 years represented 14.4%.

Table 6: Distribution of Respondents By Age

Age	Frequency	Percent
Below 30	11	6.6
30-34	23	13.8
35-44	56	33.5
45-49	53	31.7
Over 50	24	14.4
Total	167	100.0

The results showed that many respondents are at the age of 35-44 and 45-49 years, showing that majority have capacity to work in the new technological environments.

4.2.3 Educational Qualifications of the Respondents

The respondents were requested to indicate their levels of education as indicated in Table 7

Table 7: Distribution of Respondents by Educational Qualification

Qualification	Frequency	Percent
Certificate	97	58.1
Diploma	41	24.6
Bachelor's Degree	24	14.4
Masters	5	2.9
PhD	0	0.0
Total	167	100.0

The results indicated that 58.1% of the respondents had certificate qualifications; 24.6% had diploma qualifications; 14.4% were degree holders while those with a master's qualifications were 2.9%. None of the respondents had a PhD qualification. However, the results show that the respondents had generally high literacy rate which can enhance e-government adoption in the National Government Administrative Units.

4.2.4 Respondents' Rank

The respondents were asked to state the positions they were serving in the government. The findings were presented in the Table 8 below.

Table 8: Distribution of Respondents By Rank

Rank	Frequency	Percent
Assistant Chief	101	60.5
Chief	50	29.9
Assistant Sub-County Commissioner	12	7.2
Sub-County Commissioner	4	2.4
Total	167	100.0

The findings in Table 8 showed that 101 respondents who represent 60.5% were Assistant Chiefs while 50 who represent 29.9% were Chiefs. Assistant Sub-County Commissioners were 12 representing 7.2% and the 4 Sub-County Commissioners represented 2.4%.

4.2.5 Respondents Length of Service

The respondents were requested to state the duration they had worked in their respective administrative positions in the government. Table 9 shows the distribution of the respondents' length of service.

Table 9: Respondents Length Of Service

Length of Service	Frequency	Percent
Less than 1yr	18	10.8
1-5 years	32	19.2

5-10 years	63	37.7
More than 10 years	54	32.3
Total	167	100.0

From table 9, 10.8% had been in government for less than 1 year, between 1–5 years 19.2%, between 5- 10 years 37.7% and over 10 years 32.3%. Generally, most of the respondents had stayed fairly long in their workplace and we well experienced in their areas of operation. This means that many respondents have good level of awareness of adoption of electronic government initiatives in the National Government Administrative Units.

4.3 Descriptive findings on institutional determinants of e-government adoption in the National Government Administrative Units in Kenya.

4.3.1 Top-Management support

The first objective sought to determine the influence of Top Management Support on adoption of electronic government in National Government Administrative Units in Migori County. The respondents were requested to indicate the degree to which they agreed that Top Management Support determines adoption of electronic government in their place of work. A total of 10 statements on Top Management Support were used and the responses were rated on a five point Likert Scale where 1- strongly disagree, 2-Disagree, 3-Not sure, 4-Agree and 5-Strongly Agree. The results were computed in Table 10 below.

Table 10: Response on Influence of Top Management Support

Statement	N	Mean	Std. Dev.
The top management positively view utilization of electronic government services	167	3.54	.421
The senior management has a comprehensive strategy for electronic government implementation	167	3.96	.891
The management provides the needed ICT resources on time, facilitating e-government	167	4.22	.810
The top management provides adequate ICT change management programs	166	3.65	1.200
The top management positively influences the public officials' views of e-government to overcome resistance	166	4.13	.788
The top management makes follows up on e-government implementation	165	4.15	.934
The top management promotes understanding of the usefulness of electronic government applications	165	3.28	1.360
The top management provides adequate implementation guidance	167	3.99	.748
The top management shares concerns about e-government challenges	165	3.56	1.150
The top management is innovative in dealing with e-government adoption	167	4.40	.711
GRAND MEAN		3.89	

As seen in Table 10, top management support has achieved a high overall mean of (M=3.89). The high overall mean suggests that on average, the respondents agreed that top

management support influences electronic government adoption in the National Government Administrative Units in Kenya. Moreover, the results revealed that the top management positively view utilization of electronic government services ($M=3.54$, $SD=0.421$). The respondents concurred that top management has a comprehensive strategy for electronic government implementation ($M=3.96$, $SD=0.891$). The respondents further agreed that the top management provides the needed ICT resources on time, facilitating e-government adoption ($M=4.22$, $SD=0.810$). The respondents indicated that top management provides adequate ICT change management programs with the aim of promoting e-government adoption ($M=3.65$, $SD=1.200$). The findings further showed that top management positively influenced the public officials' views of e-government to overcome resistance to the implementation of e-government initiatives ($M=4.13$, $SD=0.788$). Also, the respondents did agree that top management makes follows up on e-government implementation processes ($M=4.15$, $SD=0.934$). Most of the respondents were in agreement that the top management promotes understanding of the usefulness of electronic government programs as given by a ($M=3.28$, $SD=1.36$). The respondents agreed that top management provides adequate implementation guidance ($M=3.99$, $SD=0.748$). Most respondents are in agreement that the top management shares concerns about e-government challenges ($M=3.56$, $SD=1.15$). Finally, many respondents agreed that top management is innovative in dealing with e-government adoption ($M=4.40$, $SD=0.711$).

These findings are consistent with those of Yaser & Alina (2015) who found a significant positive interrelation between support of top management and acceptance of technologies in public organizations. Moreover, the findings were similar to those of Sami, Noor & Hassan (2018) who found that support of top management is an essential factor in motivating adoption of technologies. Similar results were posted by Amini & Bakri (2015) who revealed that management which recognizes the benefits of a given technology can likely assign the required resources for its use and encourage the members of an organisational to embrace it. Furthermore, the findings are in agreement with those of Dong & Neufeld (2016) who found that effective management support influences adoption of e-government strategy significantly and Odero & Ndolo (2019) who reported that commitment and management support practices exercise several influences on the realization of system outcomes.

4.3.2 ICT Policy Framework

The second objective sought to investigate the extent to which ICT Policy Framework influences adoption of e-government in National Government Administrative Units in Migori County. The respondents were requested to indicate the degree to which they agree that ICT Policy Framework influences adoption of electronic government in their place of work. A total of 10 statements on ICT Policy Framework were used and the responses were rated on a five point Likert Scale

where 1- strongly disagree, 2-Disagree, 3-Not sure, 4-Agree and 5-Strongly Agree. The results were computed in Table 11 below.

Table 11: Response on Influence of ICT Policy Framework

Statement	N	Mean	Std. Dev.
The government regulations promote e-government initiatives and processes of implementation	167	3.77	.998
The government has a clear ICT policy for implementing and enforcing e-government strategies	167	4.05	.844
The government standards for acquisition of ICT equipment are simple, hence encouraging e-government adoption	167	3.98	.937
ICT Policies provide adequate protection of data privacy as well as security which promote adoption of electronic government services	167	3.82	1.089
ICT Policies provide for fast working processes which facilitate the application of electronic government	167	3.90	.921
ICT Policies provide procedures for effective handling of ICT equipment which facilitate e-government adoption	167	3.12	1.464
ICT Policies promote inclusion of the general public in e-government adoption	167	4.07	.847
Policies have specific requirements for using ICT services, for example using personal data, computer, accessories etc	167	4.16	.763
ICT Policies are flexible and can be easily adapted to the changing e-government needs	167	4.15	.775
Policies clearly indicate the government's ICT goals	167	3.98	.941
GRAND MEAN		3.90	

The study results found that the means of ICT Policy Framework scores ranged between ($M=3.12$) and ($M=4.16$). According to the study, many respondents agreed that government regulations promote e-government initiatives and processes of implementation ($M=3.77$, $SD=0.998$). With regard to government having a clear ICT policy for implementing and enforcing e-government strategies, majority of respondents were in agreement giving a mean of ($M=4.05$, $SD=0.884$). Many respondents agreed that government standards for acquisition of ICT equipment are simple which encourage e-government adoption ($M=3.98$, $SD=0.937$). Further, most respondents were of the opinion that ICT Policies provide adequate protection of data privacy as well as security which promote adoption of electronic government services ($M=3.82$, $SD=1.089$). Most respondents also did agree that ICT Policies provide faster working processes which facilitate the application of electronic government ($M=3.90$, $SD=0.921$). The respondents indicated that ICT Policies provide procedures for effective handling of ICT equipment that facilitate e-government adoption ($M=3.12$, $SD=1.464$). On the item ICT Policies promote inclusion of the general public in e-government adoption, majority of respondents agreed indicating a mean of ($M=4.07$, $SD=0.847$). Respondents also agreed that Policies have specific requirements for using ICT services, for example using personal data, computer, accessories etc ($M=4.16$, $SD=0.763$).

Further, the respondents agreed that ICT Policies are flexible and can be easily adapted to the changing e-government needs (M=4.15, SD=0.775) and that Policies clearly indicate the government’s ICT goals (M=3.98, SD=0.941).

Overall, the findings indicated that the respondents agreed that ICT policy Framework influences e-government adoption with a grand mean of (M=3.90). These findings are in line with those of Palvia & Baqir (2015) and Lubua (2017) who found that efficient policies positively affect implementation of electronic government efforts. Kyobe & Okongo (2018); Asare-Nuamah & Agyepong (2016); Nderitu and Kimile (2017) & Okemwa (2016) also found that for effective achievement of the goals of e-government, policy framework should serve as the bedrock in every stage of implementation of the e-government initiatives.

4.3.3 Human Resource Capacity and E-government Adoption

The third objective sought to assess the role of Human Resource Capacity on adoption of e-government in National Government Administrative Units in Migori County. The respondents were requested to indicate the degree to which they agree that the statements of Human Resource Capacity described e-government adoption. The results were computed in Table 12

Table 12: Response on Human Resource Capacity

Statement	N	Mean	Std. Dev.
You are aware of e-government strategies for National Government Administrative Units	167	4.08	.925
You adequately know the functions of e-government	167	3.50	1.307
You have adequate understanding and skills of electronic government services in the country	167	3.69	1.275
You receive regular training on e-government services	167	3.29	1.473
You regularly interact with the public through online government platforms	167	3.18	1.415
You exchange information to and from other government organizations through e-government	167	3.72	1.254
You have easy access to ICT Experts who assist in implementation of e-government initiatives	167	3.55	1.310
You are involved and participate in formulation of e-government strategies	167	3.68	1.236
You have adequate computer operation knowledge for e-government functions (eg. typing, printing and emailing)	167	3.15	1.301
You can perform simple maintenance procedures on ICT systems needed for e-government adoption	167	2.68	1.317
GRAND MEAN		3.56	

As indicated in Table 12, Human Resource Capacity had a high grand mean of (M=3.56). The high grand mean shows that on average, the respondents were not only conversant with e-government adoption initiatives but also are able to utilize the available e-government resources in delivery of services in their places of work. According to the findings, the respondents revealed that they are aware of e-government

strategies for National Government Administrative Units (M=4.08, SD=0.925). The respondents further agreed that they adequately know the functions of e-government (M=3.50, SD=1.307). Similarly, the respondents agreed that they have adequate understanding and skills of electronic government services in the country (M=3.69, SD=1.275). Also the respondents agreed that they receive regular training on e-government services (M=3.29, SD=1.473). Moreover, the respondents agreed that they are able to exchange information to and from other government organizations through e-government (M=3.72, SD=1.254). Respondents also were in agreement that they have easy access to ICT experts who assist in implementation of e-government initiatives (M=3.55, SD=1.310). Many respondents agreed that they are involved and participate in formulation of e-government strategies (M=3.68, SD=1.236). Further, most respondents had varied opinions on whether they have adequate computer operation knowledge for e-government functions (eg. typing, printing and emailing) as reflected by (M=3.15, SD=1.301). Furthermore, the respondents indicated that they can perform simple maintenance procedures on ICT systems needed for e-government adoption as indicated by a mean of (M=2.68, SD=1.317).

These findings are consistent with those of Wangari, Nyonje & Opiyo (2018) who reported that human resource capacity significantly influences e-government implementation. Onganga (2012) similarly found that human resource capacity is strongly linked to success of electronic government usage behavior. On the other hand, the findings are similar with those of Mburugu, Toroitich & Waweru (2017); Mulwa (2016) & Njihia & Makori (2015) who identified that personnel expertise had significant and remarkable influence on administration of electronic government programs.

4.3.4 ICT Infrastructure and E-government Adoption

The fourth objective sought to examine the extent to which ICT Infrastructure influences adoption of e-government in National Government Administrative Units in Migori County. The respondents were requested to indicate the degree to which they agree that ICT Infrastructure influences adoption of electronic government in their place of work. A total of 10 statements on ICT Infrastructure were used and the responses were rated on a five point Likert Scale where 1- strongly disagree, 2-Disagree, 3-Not sure, 4-Agree and 5-Strongly Agree. The results were computed in Table 13 below.

Table 13: Response on Ict Infrastructure

Statement	N	Mean	Std. Dev.
You have adequate computer hardware (e.g. printer, scanner etc) for e-government applications	167	2.96	1.153
You have reliable supply of electricity	167	4.13	.830
You have reliable Internet connection	167	3.50	.806
You have up-to-date computer software for e-government functions	167	3.72	.737

You have an active office e-mail for electronic communication	167	3.84	1.000
You have easy access to integrated website for collaborative functions	167	3.63	1.180
You have reliable backup and recovery plans for lost data	167	3.63	1.172
You have ready access to both national government and county portals	167	3.91	.984
You have adequate manuals to guide you on e-government services	166	4.04	.841
You have an efficient database system for maintaining your administrative information	167	4.16	.741
GRAND MEAN		3.95	

Table 13 shows that many respondents did not agree that they have adequate computer hardware (e.g. printer, scanner etc) for e-government applications as reflected by (M=2.96, SD=1.153) despite the high overall mean of ICT infrastructure of (M=3.95). This could be explained by the fact that in many cases, the respondents use personal gadgets when using the e-government applications. However, majority agreed that they have reliable supply of electricity (M=4.13, SD=0.830). The study findings indicated that respondents were indifferent as to whether they have reliable Internet connection as shown by (M=3.50, SD=0.806). Subsequently, the respondents agreed that they have up-to-date computer software for e-government functions as reflected by (M=3.72, SD=0.737). Respondents had a varied opinion as to whether they have an active office e-mail for electronic communication as reflected by (M=3.84, SD=1.000). The respondents further reported that they have easy access to integrated website for collaborative functions (M=3.63, SD=1.18). On data security, the respondents agreed that they have reliable backup and recovery plans for lost data (M=3.63, SD=1.172). The respondents indicated that they have ready access to both national government and county portals (M=3.91 SD=0.984) and adequate manuals to guide them on e-government services (M=4.04, SD=0.841). Finally, the respondents agreed that they have an efficient database system for maintaining their administrative information (M=4.16, SD=0.741) which facilitate the use of electronic government services.

These findings are consistent with those of Penina (2015) who found that availability of advanced and secure ICT infrastructure has a positive influence on the use of electronic government. The findings are also in agreement with those of Mulubi (2016); Egoeze, Sanjay & Ricardo (2014) that infrastructure as a facilitating condition has sufficient role on behavioral desire to adopt electronic government services. Moreover, Rateng (2012) & Mensa (2019) established that customized ICT infrastructure for specific functions are required to scale electronic government services faster in public organizations.

4.3.5 E-government Adoption

E-government adoption was the dependent variable of the study. The respondents were requested to indicate the degree to which they agreed with the statements regarding adoption of electronic government in their place of work. A total of 10

statements on E-government adoption were used and the responses were rated on a five point Likert Scale where 1-strongly disagree, 2-Disagree, 3-Not sure, 4-Agree and 5-Strongly Agree. The results were computed in Table 14 below.

Table 14: Response on E-Government Adoption

Statements	N	Mean	Std.Dev.
Adoption of electronic government has reduced cost of service delivery	167	4.08	.831
Adoption of electronic government has enhanced task automations	167	4.05	.670
Adoption of electronic government has improved quality of services offered to citizens	167	3.15	1.236
Adoption of electronic government has facilitated effective data and information management (eg, storage & retrieval)	165	4.55	.920
Adoption of electronic government has enabled timely provision of services	165	3.42	1.601
Adoption of electronic government has improved easy communication	167	3.96	1.291
Adoption of electronic government has enhanced security and privacy of administrative data and information	167	2.95	1.459
Adoption of electronic government reduced decision making processes (reduced bureaucratic processes)	167	3.19	1.287
Adoption of electronic government has enhanced provision of standardized services, therefore ensuring equality in service provision	167	4.06	1.174
Electronic government has improved transparency in service provision	167	3.12	1.248
GRAND MEAN		3.47	

Drawing from the results in the table above, the respondents generally agreed that adoption of electronic government has reduced cost of service delivery (M=4.08, SD=0.831) and that it has also enhanced task automations (M=4.05, SD=0.670). Moreover, respondents did agree that the adoption of electronic government has improved quality of services offered to citizens (M=3.15, SD=1.236). Many respondents agreed that adoption of electronic government has facilitated effective data and information management (eg, storage & retrieval (M=4.55, SD=0.920) and e-government has enabled timely provision of services (M=3.96, SD=1.291). Further, most of the respondents agreed that e-government has enhanced security and privacy of administrative data and information (M=2.95, SD=1.459). In addition most respondents did agree that adoption of electronic government reduced decision making processes (reduced bureaucratic processes) (M=3.19, SD=1.287) and also noted that e-government has enhanced provision of standardized services, therefore ensuring equality in service provision (M=4.06, SD=1.174). Furthermore, the respondents agreed that e-government has improved transparency in the service provision (M=3.12, SD=1.248). With an overall mean of (M=3.47), these findings show that adoption of e-government is in good progress and has improved service provision in the National Government Administrative Units. The findings are similar to those of Bertot (2012) and Piret (2015) which

indicated that e-government makes administrative processes convenient, efficient and responsible.

4.4 Correlation Analysis

The study sought to establish how the variables under study are associated. The correlation tests were carried out using the Pearson’s Product Moment correlation analysis to test association and the strength of the relationships between the variables. As suggested by Field (2013); Sekaran & Bougie (2010), Pearson’s product moment is appropriate and should be used when the items of the study are measured using interval or ratio Scales, which the current study uses. The Pearson correlation coefficient, r, from the range of values of ±0.1 to ±0.49 indicated weak relationships, r-values of ±0.5 to ±0.69 indicated moderate relationships while r-values between ±0.7 to ±1 indicated strong relationships. The tests were done at 0.01 significance level and the results computed in Table 15 below.

Table 15: Correlation Matrix on Institutional Determinants of E-Government Adoption

Variable		1	2	3	4	5
1. Top Management Support	Pearson Correlation	1	.017**	.192**	.234**	.746**
	Sig. (2-tailed)	.	.000	.000	.000	.000
	N	167	167	167	167	167
ICT Policy Framework	Pearson Correlation	.017**	1	.171**	.184**	.715**
	Sig. (2-tailed)	.000	.	.000	.000	.000
	N	167	167	167	167	167
Human Resource Capacity	Pearson Correlation	.192**	.171**	1	.081**	.682**
	Sig. (2-tailed)	.000	.000	.	.000	.000
	N	167	167	167	167	167
4. ICT Infrastructure	Pearson Correlation	.234**	.184**	.081**	1	.691**
	Sig. (2-tailed)	.000	.000	.000	.	.000
	N	167	167	167	167	167
5. E-government Adoption	Pearson Correlation	.746**	.715**	.682**	.691**	1
	Sig. (2-tailed)	.005	.000	.000	.000	.
	N	167	167	167	167	167

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

The findings in Table 15 indicated a strong positive relationship between Top Management Support and E-government adoption (r = 0.746, N=167, p<0.01). The results also indicated that ICT Policy Framework has a strong positive relationship with E-government adoption (r = 0.715, N=167, p<0.01). However, both Human Resource Capacity (r = 0.682, N=167, p<0.01) and ICT Infrastructure (r=0.691, N=167, p<0.01) have moderate positive relationship with E-government adoption. These results confirm the previous studies conducted by Yaser & Alina (2015); Amini & Bakri (2015); and Odero & Ndolo (2019) who found that there is significant positive correlation between support of top management and application of electronic government in the public organizations. On ICT Policy Framework, Okemwa (2016); Nderitu and Kimile (2017) found that ICT policies are positively and significantly interrelated with e-government implementation. The correlation results of the studies by Onganga (2012); Mburugu, Toroitich, & Waweru (2017) also indicated a positive association between human resource capacity and take up of electronic technologies. On ICT infrastructure, Amit, Arindum & Ravij (2018) indicated that ICT systems and infrastructure have a positive association with electronic government usage.

4.5 Regression Analysis

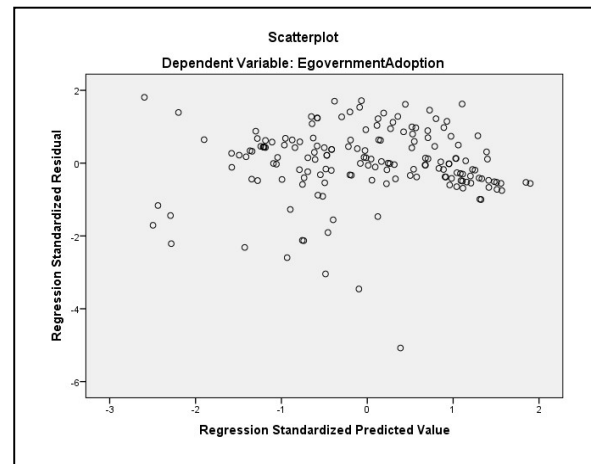
4.5.1 Diagnostic Tests of Regression Assumptions

Diagnostics tests were used to evaluate the regression model to determine if there are observations with large and undue influence on the results. The regression diagnostic tests used in this study were Linearity, Homoscedasticity, Normality and Multicollinearity tests.

4.5.1.1 Linearity test

A scatterplot of standardized residuals (ZRESID) against standardized predicted (ZPRED) values was used to test for linearity, as indicated in the graph of Figure 3

Figure 3: Linearity test



The residual scatter plots in Figure 3 show that data points are evenly and randomly dispersed about zero, the data points do

not funnel out and there is no indication of a curve in the graph. This shows no evidence of nonlinear pattern to the residuals, and the pattern indicates that the assumptions of linearity were met. According to Tabachnick & Fidell (2007), the assumption of linearity is satisfied when the relationship between residuals and the predicted values is not clear. That is, when the points are evenly distributed above and below zero on X-axis, and to the left and right of zero on Y-axis of the graph.

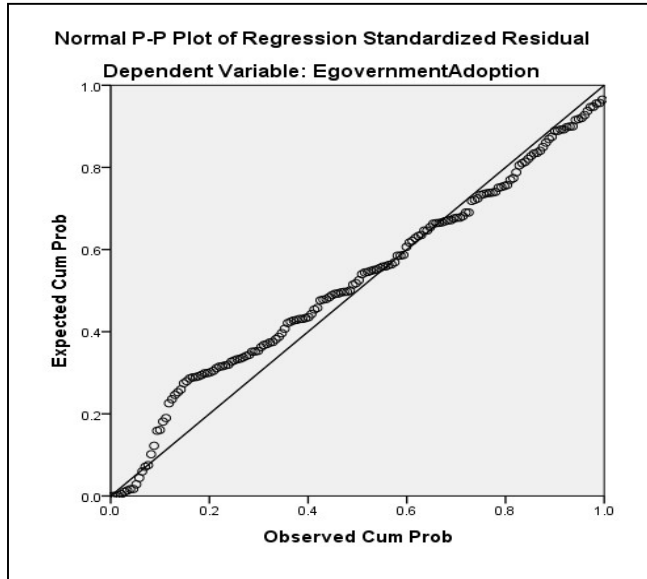
4.5.1.2 Homoscedasticity test

The scatterplot of standardized residuals (ZRESID) against standardized predicted (ZPRED) values in the Figure 3 above was used to test the assumption of homoscedasticity. The findings showed no clear relationship between the residual values and the predicted values. Thus, the results indicate that the assumption of homoscedasticity was met.

4.5.1.3 Normality test

For the normality test, normal probability plot was used and the plotted values were compared with normal distribution line. According to Saunders et. al., (2012), if the standardized residuals are normally distributed, the data plots falls on or are tightly close to the normal distribution line. The Figure 4 below shows that the plots of the residuals are either close to or fall on the normal distribution line. Normality test has therefore been met in this study.

Figure 4: Normality test



4.5.1.4 Multicollinearity test

When multicollinearity exists between independent variables, the results of the regression model can be deteriorated. Therefore, multicollinearity of the predictor variables was diagnosed using Tolerance and Variance Inflation Factor (VIF) values as shown in Table 16

Table 16: Multicollinearity Results

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.177	.343		6.350	.000	
	Top Management	.327	.125	.396	5.721	.034	.418
	ICT Policy	.297	.117	.065	3.595	.042	.390
	Human Resource	.261	.059	.399	4.397	.000	.566
	ICT Infrastructure	.278	.109	.256	2.837	.012	.459

a. Dependent Variable: E-government Adoption

The result in Table 16 indicated that multicollinearity did not exist among the predictor variables since the Tolerance values were more than .10 while those of VIF were less than 10. Moreover, in the Table 15, correlation coefficients for all the variables were less than 0.5 indicating that the study data did not have severe multicollinearity between the variables.

4.5.2 Regression Analysis on institutional determinants of e-government adoption in the national government administrative units

Multiple regression analysis was conducted to predict the outcome and check if the existing relationship between independent and dependent variables is statistically significant. The quantity of change experienced by the dependent variable was explained in terms of the regression beta coefficients of the independent variables. The researcher formulated the following multiple regression model:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$$

Where:

Y – E-government adoption

β_0 – Constant variable

$\beta_1, \beta_2, \beta_3, \beta_4$ - Regression coefficients

X_1, X_2, X_3, X_4 – Top Management support, ICT Policy Framework, Human Resource Capacity and ICT Infrastructure respectively.

ϵ – Error term

The regression results were indicated in Table 17, Table 18 and Table 19

Table 17: Model Summary for Institutional Determinants and E-Government Adoption

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.791 ^a	.625	.623	.52038

a. Predictors: (Constant), Top Management Support, ICT Policy Framework, Human Resource Capacity, ICT Infrastructure

The findings in Table 17 show that the product moment correlation coefficient (R) was observed as 0.791, meaning that there is strong and positive correlation between the predictor variables and e-government adoption. The value of Adjusted R square was used to indicate the predictive power of the regression model and to examine the overall fit of the model in supporting the research hypotheses. Its value was found to be 0.623, implying that 62.3% of the variation in e-government adoption is explained by Top Management Support, ICT Policy Framework, Human Resource Capacity, ICT Infrastructure. The remaining 37.7% of variation in e-government adoption is explained by other factors not included in this study. However, these findings are consistent with a study by Bjorn & Walid (2010) in India which identified that the role of institutional factors such as support by top management, capacity of the human resources and adequate policy greatly influence implementation of electronic technologies.

Table 18: Anova for Institutional Determinants and E-Government Adoption

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14.475	4	3.619	13.364	.000 ^b
	Residual	43.597	161	.271		
	Total	58.073	165			
a. Dependent Variable: E-government Adoption						
b. Predictors: (Constant), Top Management Support, ICT Policy Framework, Human Resource Capacity, ICT Infrastructure						

The ANOVA findings shown in Table 18 were used to examine the statistical significance of the results. From the table, the value of F statistic $F(4,161) = 13.364, p < 0.05$ is greater than the critical F statistic ($F(4,161) = 2.43, p < 0.05$). Moreover, the level of significance was 0.000 which is less than the p-value of 0.05 that had been chosen as the statistical threshold for inferences at 95% level of confidence. These findings demonstrate that the estimated regression model sufficiently provided a good fit to the observed data and that the influence of the four independent variables on the dependent variable is statistically significant.

Table 19: Coefficients for Institutional Determinants and E-Government Adoption

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.177	.343		6.350	.000
	Top Management	.327	.125	.396	5.721	.034
	ICT Policy	.297	.117	.065	3.595	.042
	Human Resource	.261	.059	.399	4.397	.000
	ICTInfrastructure	.278	.109	.256	2.837	.012
a. Dependent Variable: E-government Adoption						

The results in Table 19 show that all the variables had P-values of less 0.05 and values of t statistics greater than the critical t-value of 1.654. This indicates that the variables are significant in predicting e-government adoption. The constant term was found to be significant at 5% significance level ($p < 0.05$), indicating that if all the variables (Top Management Support, ICT Policy Framework, Human Resource Capacity and ICT Infrastructure) are held constant, e-government adoption in the National Government Administrative Units would be equal to 2.177. The results further indicated that when the other factors are held constant, Top Management Support would lead to a 0.327 increase in e-government adoption, the highest magnitude among the variables. Similarly, ICT Policy Framework would increase e-government adoption by 0.297 when other factors are held constant. Human Resource Capacity would lead also to a 0.261 increase (the least magnitude) in e-government adoption when other factors are held constant. Furthermore, ICT Infrastructure would increase e-government adoption by 0.278 when other factors are held constant. Thus, the regression model established was as follows:

$$Y = 2.177 + 0.327X_1 + 0.297X_2 + 0.261X_3 + 0.278X_4 + \epsilon$$

4.5.2.1 Top Management Support and E-government Adoption

The first objective determined the influence of Top Management Support on adoption of e-government in National Government Administrative Units in Migori County. It was hypothesized that Top Management Support has no significant influence on e-government adoption. The summary of B-value, t-value and the significance level in Table 20 were used to predict the hypothesis.

Table 20: Summary of Coefficients of Top Management and E-Government Adoption

B-value	t-value	Sig.
.327	5.721	.034

From Table 20, the beta value for the variable of Top Management Support was 0.327, with a t-statistic of 5.721 and the corresponding p-value of 0.034. The positive beta value indicates that an increase in support of the top management leads to greater likelihood that adoption of electronic government initiatives would increase. The greater t-statistic provides evidence that top management support directly influences electronic government adoption. Further, the p-value of 0.034 is less than 0.05, demonstrating that the relationship between Top Management Support and electronic government adoption in Kenya is significant. This means that the null hypothesis which states that there is no relationship between Support of Top Management and adoption of e-government is not supported. Consequently, the null hypothesis is rejected.

The findings are consistent with the previous studies conducted by other scholars, including Amini & Bakri (2015) who established that top management behaviors directly and positively affect the use and adoption of modern innovations.

Further, Yaser & Alina (2015) showed that management which recognizes the benefits of a given technology can likely assign the needed resources for its application and encourage the organisational members to technological innovations. Moreover, in agreement with the study by Sami, Noor & Hasan (2018), if a manager and staff in an organization have positive attitude towards the use of a given technology, then the organisation is more likely to adopt it.

4.5.2.2 ICT Policy Framework and E-government Adoption

The second objective was to find out whether ICT policy influences adoption of electronic government in National Government Administrative Units in Migori County. The hypothesis formulated was that ICT Policy Framework has no significant influence on adoption of electronic government in the National Government Administrative Units. The summary of B-value, t-value and the significance level in Table 21 were used to predict the hypothesis.

Table 21: Summary of Coefficients of ICT Policy Framework and E-Government Adoption

B-value	t-value	Sig.
0.297	3.595	.042

Table 4.18 shows that ICT policy has a positive effect on e-government adoption. From the

results, a unit increase in ICT policy Framework yielded 0.297 change in e-government adoption at $p < 0.05$ and t-statistic $t(161) = 3.595$ greater than the critical t value of 1.654. Thus, the null hypothesis was rejected since the findings showed a significant relationship of ICT policy on electronic government adoption. The findings demonstrates the need for better policies to be established by the government in order to successfully design and implement e-government initiatives in the National Government Administrative units. The results are in line with the preceding findings by Palvia & Baqir (2015); Lubua (2017); Kyobe & Okongo (2018) who identified that implementation of electronic government is directly affected and streamlined by ICT policies. Asare-Nuamah & Agyepong (2016) further established that for effective achievement of the goals of e-government, policy framework should serve as the bedrock in all implementation stages of electronic government programs.

4.5.2.3 Human Resource Capacity and E-government Adoption

Objective three was to assess the role of Human Resource Capacity on adoption of electronic government in National Government Administrative Units in Migori County. The hypothesis stated that Human Resource Capacity has no significant effect on adoption of electronic government in National Government Administrative Units in Migori County. The hypothesis was predicted using the B-value, t-value and the significance level in Table 22.

Table 22: Summary Of Coefficients Of Human Resource And E-Government Adoption

B-value	t-value	Sig.
0.261	4.397	.000

Based on Table 22 results, Human Resource Capacity has a strong, positive and significant relationship on e-government adoption. The beta value of 0.261 at $p < 0.05$ indicates that a unit increase in Human Resource Capacity yielded 0.261 change in e-government adoption at 0.05 level of significance. The t-statistic was also found to be greater than the critical value of at 0.05 level of significance. Therefore, the null hypothesis was rejected since the relationship between Human Resource Capacity and electronic government adoption was significant.

The findings concurred with those of Wangari, Nyonje & Opiyo (2018) and Onganga (2012) which reported that Human Resource Capacity significantly influences e-government implementation. Thus, this finding implies that there is need to further improve the ICT skills of personnel in the National Government Administrative Units in order to realize a greater impact of electronic government in the service delivery. Kiplangat, Shisia & Charotich (2015), noted that this can be done through specific ICT training; recruitment of ICT-skilled staff and adopting appropriate leadership style to embrace change in the technological areas.

4.5.2.4 ICT Infrastructure and E-government Adoption

The fourth objective examined the extent to which ICT Infrastructure influences adoption of electronic government in National Government Administrative Units in Migori County. Hypothesis four was stated thus; ICT Infrastructure has no significant influence on adoption of electronic government in National Government Administrative Units.

Table 23: Summary of Coefficients of ICT Infrastructure and E-Government Adoption

B-value	t-value	Sig.
0.278	2.837	.012

The result shows a positive, significant relationship between ICT infrastructure and e-government adoption. As indicated by $\beta = 0.278$, $t = 2.537$ & $p < 0.05$, a unit increase in ICT infrastructure yielded 0.278 change in e-government adoption at 0.5% level of significance. Therefore, the results failed to accept the null hypothesis and conclude that ICT infrastructure has a significant influence on electronic government adoption in national government administrative units. The idea is that e-government is heavily relying on ICT infrastructure which means that a well-equipped administrative unit leads to improved service delivery.

These findings support the study by Mulubi (2016) which identified that availability of infrastructure has the strongest association with electronic government usage. A study by Mensa (2019) indicated that infrastructure as a facilitating

condition has sufficient role on behavioral desire to adopt electronic government services and influences people to work effectively and efficiently in achieving a goal. Similarly, Penina (2015) found that ICT equipment is important for continued application of electronic services in public sector.

4.6 Summary of Hypotheses tests

The results of correlation and regression analyses were summarized in the Table 24 below.

Table 24: Summary of Hypotheses and Major Results

Hypotheses	Results	Decision	Conclusion
H ₀₁ : Top Management Support has no significant influence on adoption of e-government in the National Government Administrative Units in Migori County.	r=0.746 β=0.327 t=5.721 p=0.034<0.05	Reject H ₀₁	Top Management Support has significant influence on adoption of electronic government in the National Government Administrative Units in Migori County.
H ₀₂ : ICT Policy Framework has no significant influence on adoption of e-government in National Government Administrative Units in Migori County.	r=0.715 β=0.297 t=3.595 p=0.042<0.05	Reject H ₀₂	ICT Policy Framework has significant influence on adoption of electronic government in National Government Administrative Units in Migori County.
H ₀₃ : Human Resource Capacity has no significant effect on adoption of e-government in National Government Administrative Units in Migori County.	r=0.682 β=0.261 t=4.397 p=0.000<0.05	Reject H ₀₃	Human Resource Capacity has significant effect on adoption of electronic government in National Government Administrative Units in Migori County.
H ₀₄ : ICT Infrastructure has no significant influence on adoption of e-government in National Government Administrative Units in Migori County.	r=0.691 β=0.278 t=2.837 p=0.012<0.05	Reject H ₀₄	ICT Infrastructure has significant influence on adoption of electronic government in National Government Administrative Units in Migori County.

V. SUMMARY, CONCLUSIONS AND RECOMMENNDATIONS

5.1 Summary of Research Findings

The main objective of the study was to evaluate institutional determinants of electronic government adoption in national government administrative units in Kenya, with a reference to

Migori County. The study had the following four specific objectives: to determine the influence of top management support on adoption of electronic government in national government administrative units in Migori county; to investigate the extent to which ICT policy framework influences adoption of electronic government in national government administrative units in Migori county; to assess the role of human resource capacity on adoption of electronic government in national government administrative units in Migori county and to examine the extent to which ICT infrastructure influences adoption of electronic government in national government administrative units in Migori county.

Descriptive research design was adopted and the sample size was 184. Data was collected using closed-ended questionnaires and the response rate was 90.8%. The questionnaires were reliable for the study, having scored Cronbach’s alpha coefficient of 0.797. The study was based on the Diffusion of Innovation (DOI) theory and the Unified Theory of Acceptance and Use of Technology (UTAUT). Data was analyzed using both descriptive and inferential statistics by SPSS software version 22. Descriptive analysis utilized mean and standard deviation while inferential analysis employed correlation and regression techniques. The findings established that e-government adoption in the national government administrative units is greatly influenced significantly by institutional determinants. The findings are in agreement with the reviewed empirical literature which indicated that institutional factors have a significant influence on electronic government adoption.

5.2 Influence of Top Management Support on adoption of e-government

The results showed a positive and significant interrelation between top management support on adoption of e-government in national government administrative units. Descriptively, the results indicated a higher grand mean of (M=3.89) suggesting that on average, the respondents agreed that top management support influences e-government adoption in the National Government Administrative Units. The correlation results indicated an R value of (r=0.746, p<0.01) which suggested a high correlation between top management support and e-government adoption. Moreover, the regression coefficients (β=0.327, t=5.721, p=0.034<0.05) indicated that an increase in support of the top management leads to higher likelihood that adoption of electronic government initiatives would increase. The findings of this hypothesis imply that for the government to embrace adoption of e-government effectively, top management must be at the forefront and be willing to implement the policies in place and also put the necessary infrastructure needed to implement such policies.

5.3 Influence of ICT Policy Framework on adoption of e-government

The results for ICT Policy Framework had higher scores, demonstrating that policy framework has significant influence

on e-government adoption in the National Government Administrative Units. For instance, the variable had an overall mean of ($M=3.90$), product-moment correlation coefficient of ($r=0.715$, $p<0.01$) and a beta value of ($\beta=0.327$, $p=0.034<0.05$). These findings indicate that most respondents agreed that if ICT policy frameworks are followed then it would be easy to adopt e-government. The findings of this hypothesis are important because they show that formulation of well-designed ICT policies lead to effective e-government adoption which in turn improves delivery of public services.

5.4 Influence of Human Resource Capacity on adoption of e-government

The study established a positive and significant relationship human resource capacity and e-government adoption. From the descriptive results, human resource capacity reported a grand mean of ($M=3.56$). The correlation value of had a value of ($r=0.682$, $p<0.01$), indicating a moderate, but positive relationship with e-government adoption. Further, the regression model indicated a beta value of ($\beta=0.261$, $t=4.397$, $P=0.000<0.05$) which cemented the idea that human resource capacity significantly influences electronic government use in the national government administrative units. The findings demonstrate that when the personnel in the national government administrative units are skilled and have the capacity to use new technologies for service delivery, there can be smooth implementation of e-government programs. Thus, the national government needs to ensure that employees are provided with the right knowledge and skills to ensure successful adoption of electronic government.

5.5 Influence of ICT Infrastructure on adoption of e-government

Like the other three variables in this study, the findings showed a high overall mean of ($M=3.47$), indicating that many respondents agreed that ICT infrastructure has a significant influence on electronic government adoption. The correlation coefficient of ($r=0.691$, $p<0.01$) and the beta value of ($\beta=0.278$, $t=2.837$, $p=0.012<0.05$) also reported a positive relationship between ICT infrastructure and electronic government adoption. The findings of this hypothesis show that ICT infrastructure has sufficient role on behavioral desire to adopt electronic government services. This implies that there is need to further improve the existing ICT systems and make new technologies available for successful actualization of all the e-government goals and objectives in the national government administrative units.

5.6 Conclusions from the findings

5.6.1 Conclusion on Top Management Support on adoption of e-government

The study concludes that top management support has a positive and significant interrelation with adoption of e-government in national government administrative units. Based on the findings, the study concludes that the top management in the National government administrative units

is committed to ensuring that e-government is fully implemented in the sector. The study similarly concludes that the findings of previous studies that established that top management support has influence on e-government adoption are true.

5.6.2 Conclusion on ICT Policy Framework on adoption of e-government

On policy, the study concludes that ICT policy framework has significant influence on e-government adoption in the National Government Administrative Units. The study concludes that current ICT policies are effective and can further facilitate growth of e-government in the national government administrative units when fully implemented. Moreover, the study concludes that ICT policy has a significant influence on adoption of electronic government in other public sectors, as has been shown by other researchers.

5.6.3 Conclusion on Human Resource Capacity on adoption of e-government

Like in the first two objectives, the study concludes that there exists a positive and significant relationship between human resource capacity and e-government adoption. The positive relationship indicates that at the moment, majority of national government administrators are equipped with ICT skills valuable for e-government. However, the mean score for human resource capacity was lowest, indicating that it faces more challenges than the other three factors discussed in the study.

5.6.4 Conclusion on ICT Infrastructure on adoption of e-government

The study concludes that ICT infrastructure has a significant influence on electronic government adoption. However, ICT infrastructure used by the government administrators was mostly personal, for example, the use of phones and personal computers. Nonetheless, the ICT that exist and used contribute significantly to implementation of e-government in the National Government Administrative Units.

5.7 Contribution of the Study to Knowledge

The findings of the study showed that institutional factors significantly affect e-government adoption in the national government administrative units. This contributes to the existing knowledge which has focused mainly on e-government adoption in other public sectors such as government parastatals, public procurement, public learning institutions and civil registration. Secondly, the study is important to the existing knowledge as it provides a deeper understanding of the relationship between institutional determinants and e-government adoption by employing empirical analysis on the variables under study. Previous studies involved descriptive analyses which could not give detailed information on the link between institutional factors and e-government adoption. In addition, a number of the studies reviewed failed to perform critical diagnostic tests to

assess the conformity of their study models with inherent assumptions. The current study tested the inherent assumptions to ensure that the findings are accurate and reliable for generalizations. Thirdly, the current study supports the postulates of Diffusion of Innovation (DOI) theory and the Unified Theory of Acceptance and Use of Technology (UTAUT) which emphasize that institutional factors are the main determinants of electronic government adoption in the public sector.

5.8 Recommendations for Policy and Practice

5.8.1 Recommendation on Top Management Support on adoption of e-government

The study recommends that the top management in the national government administrative units should be strongly supportive and take sincere interest in inspiring implementation of e-government programs, especially for the services that are regularly sought by the public. The top management should provide the required e-government equipment and to continually supervise the implementation of the programs.

5.8.2 Recommendation on ICT Policy Framework on adoption of e-government

On ICT Policy framework, the study recommends that the national government should enact flexible policies which can provide clear and compelling vision for achieving e-government objectives not only in the national government administrative units but also in other sectors of the public service.

5.8.3 Recommendation on Human Resource Capacity on adoption of e-government

On the other hand, the government should ensure that employees in the national government administrative units are skilled in the use of modern technologies through provision of ICT training and aligning operations in the sector with the technological changes and needs of the service recipients

5.8.4 Recommendation on ICT Infrastructure on adoption of e-government

Finally, the study recommends that to fully harness the power of e-government, the government should ensure adequate investment in ICT infrastructure and related technologies in the national government administrative units.

5.9 Suggestions for Further Research

The results and inferences made from the current study are limited to the constructs of top management support, ICT policy framework, human resource capacity, ICT infrastructure and electronic government adoption in the national government administrative units in Migori County. Therefore, it is necessary for future researchers to use these variables to conduct similar empirical studies in national government administrative units in other counties in Kenya as well as in other countries for comparison purposes. The

factors not accounted for in this study should also be studied by future researchers. The current study employed fixed-response questionnaires which could have left out some information. Future studies should therefore consider using closed-ended as well as open-ended questionnaires in order to collect more data on e-government adoption. Because this study employed correlation and regression techniques for inferential analysis, future researchers should employ other analysis methods such as Structural Equation Modeling so that the results can be compared. This study is based on Diffusion of Innovation (DOI) theory and the Unified Theory of Acceptance and Use of Technology. Future researchers should consider utilizing other e-government adoption theories in their studies. Lastly, this research is a cross-sectional study and it recommends that future researchers to undertake a longitudinal study to determine if the results of this study holds and to explore the patterns of change of the study variables.

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