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Relative Advantage, Perceived Usefulness and Social Influence are the main precursors that drive adoption of e-government among the Youth in Kenya

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Abstract

E-government has become a central component of increasing citizen's access to information and transacting with government agencies. In Kenya, there are different platforms where citizens can access information and transact with the government such as Ajira digital, e-citizen, i-Tax, JijiPay, and e-Registry among others. Conventionally, these platforms are internet-based, and different segments of the population interact differently with the technologies. Specifically, the youth are tech-savvy, enthusiast with new technology and have a higher functional literacy compared to the older generation. As such, the way the youths interact with technology is way different from how the older generation uses e-government. In this regard, the researcher conducted a focused-study targeting a sample of 380 youth drawn from Kangundo constituency, Machakos County, Kenya. The purpose of the survey was to determine factors that influence youths to use e-government as opposed to paper-based processes in Kenya. As such, the researcher used multiple linear regression models and principal component analysis to determine the causal relationship between the variables. The findings indicated that Relative Advantage $R_{(306)} = 0.820$, $p < 0.05$, $R^2 0.673$, Social Influence $R_{(306)} = 0.271$, $p < 0.05$, $R^2 0.073$ and Perceived Usefulness $R_{(306)} = 0.369$, $p < 0.05$, $R^2 0.136$ were the three important factors that influence youths' adoption of e-government. On the contrary, Access to the Internet $R_{(306)} = 0.353$, $p < 0.5$, $R^2 0.125$ and Perceived Ease of Use $R_{(306)} = 0.388$, $p < 0.05$, $R^2 0.15$ were not significant variables and had a weak predictive value. As such, the two variables were removed from the model.

Keywords: *e-government, e-government adoption, social influence, perceived ease of use, perceived usefulness, relative advantage, government, technology acceptance model, diffusion of innovation theory*

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Introduction: Although the adoption of e-government is a recent development aimed at modernizing the state, the uptake of e-government by the youths is still in its infancy in Kenya (Gathungu, and Mungai, 2012). In particular, e-government is the foundation of new ways of enhancing communication between state agencies and the youths and by extension decentralizing public service from the center towards the periphery. In particular, Kenya's

adoption of the e- citizen portal, which is an integrated information management system, was christened as the hallmark for transforming the delivery of public service to the youth and by extension the citizens. However, the digital divide in Kenya remains high. An ICT Access Gaps Study report released by the Communication Authority of Kenya 2016 points out that 3G internet access in Kenya stands at 22%, while 2G internet access was at 78%. In retrospect, with the wide access gap in Kenya and the digital divide standing at 52.8%, according to the Communication Authority of Kenya, it becomes imperative to investigate the critical success factors contributing to the uptake of e-government platforms by the youth within the age of 18-35. In line with these challenges in adoption, there exists a wide research gap on the determinants that influence the adoption of e-government by the youth, especially in developing countries. Besides, extensive research has been done on adoption in developed countries; however, none of the researchers have conducted a focused study on youths as opposed to the entire population. The importance of studying adoption rates by the youth is founded on the view that Millennials are sophisticated individuals, tech-savvy and enthusiastic about technology. Therefore, their choice to utilize and adopt a technology may be different from that of the baby boomers and the older generation in Africa and other developing countries.

Background:

Since 2004, when the Kenyan government adopted the e-government strategy, the country has taken deliberate steps to digitize the services offered by different government agencies. According to a survey commissioned by United Nations Department of Economic and Social Affairs (UNDESA) in 2016, Kenya had a medium rate of e-government adoption among the youth ranking the 10th among the top-ten adopters in Africa. Mauritius was the leading country in the utilization of e-government in Africa (UNDESA, 2016).

The different e-government platforms in Kenya include the e-citizen platform, digitization of Kenya Revenue Authority services under the banner iTax, Ajira digital, JijiPay, e- registry for online business registration and other open source platforms for enabling the youth access government services. These initiatives were undertaken to allow the government to create efficiencies in service delivery, enhance transparency and accountability of state agencies, de- bureaucratize services and more importantly enable the government's response to youths' needs. Nonetheless, the adoption process since 2004 and later in 2006 when the government first created the National ICT policy had been a daunting task. In essence, poor Information Communication Technology (ICT) infrastructure, inadequate funding of ancillary networks, poor competencies and an enormous digital divide were the greatest challenges that impeded proper adoption of e-government in Kenya (Wamoto, 2015).

In a report publicized by UNDESA in 2016, Kenya was ranked 10th among top 10 African states with a score of 0.4186 using the E-government Development Index (EGDI). The UNDESA uses EGDI to rank countries regarding the adoption and utilization of e-government platforms to enhance service delivery. The index uses ICT infrastructure,

human capacity, telecommunication connectivity and provision of online services to determine the ranks. In particular, 0 denotes the lack of e-government infrastructure while 10 reflects the full utilization of e-government platforms in the delivery of services. While Kenya has a relatively higher EGDI compared to other African countries, the United Nations report indicated that access to public services was still low due to functional illiteracy, lack of proper ICT infrastructure, and a significant digital divide.

A survey by the Communication Authority of Kenya augmented the propositions made by the UNDESA regarding the impediments that faced Kenya in the execution of its e-government strategy. In particular, the report noted that the digital divide stood at 52.8% caused by the low 3G network connectivity across the country, lack of internet-enabled mobile gadgets and computers among the youth and lack of functional literacy to operate a computer and mobile gadgets. More specifically, a study conducted by Mutisya, Kiai, and Ndati (2016) in Machakos County to determine the adoption and usage of mobile telephony among women entrepreneurs indicated that only 17.1% of the respondents used their mobile gadgets to access internet services with 37% of those accessing social media platforms like Facebook. The other respondents indicated that they used mobile telephony for voice calls and SMS services.

Previous research in Kenya such as that conducted by Gathungu, and Mungai (2012), and another conducted by Alateyah, Crowder, and Wills (2014) have greatly focused on the supply- side, where the government provides information to the citizens as the final consumers. The researchers viewed government as a mammoth organization using online platforms to communicate with the citizens and receive feedback. Besides, much has been done on the role of e-government in the debureacratization of government, bringing efficiency in public service delivery, enhancing accountability and transparency and reducing corruption formerly perpetrated by the civil bureaucracy through manual processes. Nonetheless, there exists a considerable research gap on the demand side targeting the end-user. In this regard, few researchers in Kenya and by extension other developing countries have focused on investigating the determinants that contribute to the uptake of e-government platforms by the youths aged between 18-35 years. In this regard, this study aimed at investigating the uptake of e-government platforms by the youth focusing on the perceived ease of use, accessibility to the internet, relative advantage, perceived usefulness, and social (peer) influence.

Mpinganjira (2012), argued that the provision of e-government services required huge capital outlays and other non-financial resources to deploy. Besides, the e-government services focus to benefit the citizenry; therefore, investing resources in understanding the attitudes and perceptions that affect adoption of the systems is critical. The researcher also proposed that the comprehension of how different determinants interact to influence the uptake of e-government is a requisite goal towards successful execution of e-government. Alateyah, Crowder, and Wills (2014) augment this proposition by noting that the cornerstone for successful e-government implementation is a proper comprehension of

critical elements that influence uptake, especially in developing countries. In particular, Alateyah, Crowder, and Wills (2014), reiterates that the scanty research on elements that affect the uptake of e-government are partly to blame for the failures in the execution of e-government platforms, especially in developing countries.

Moreover, extensive research regarding adoption has been conducted in developed nations; however, fairly little has been done in developing countries, which explains the disconnect between implementation of policies and adoption (Alateyah, Crowder, and Wills, 2014). Sorn-in, Tuamsuk, and Chaopanon (2015), who are public policy scholars in Thailand, have argued that Thailand has developed several portal sites to buttress government's effort to decentralize services; however, one of the substantial impediments has been the consistently low levels of adoption. Mpinganjira, (2012): Alateyah, Crowder, and Wills, (2014) and Sorn-in, Tuamsuk, and Chaopanon (2015) appear to agree that one of the greatest challenges facing developing countries in the implementation of e-government platforms is low-levels of adoption. It is on this basis that it becomes prudent to investigate determinants of successful adoption of e-government and more so focusing on the youth, who are tech-savvy and anxious about new technological developments.

Research questions:

- a) How does the perceived ease of use of technology motivate the uptake of e-government platforms by youths in Kangundo constituency?
- b) How does accessibility to the internet affect the uptake of e-government services by Kangundo constituency youths?
- c) How does the relative advantage of e-government services affect the uptake of e-government services by Kangundo constituency youths?
- d) How does the perceived usefulness of technology affect the uptake of e-government platforms by Kangundo constituency youths?
- e) How does social (peer) influence affect the uptake of e-government platforms by Kangundo constituency youths?

Literature Review: There is an inordinate amount of empirical evidence derived from studies seeking to establish the factors that contribute to the uptake of e-government platforms by citizens of different countries more so developing states. Many researchers beginning with the works of Carter and Belanger (2004) have investigated the correlation between uptake of e-government and perceived usefulness, perceived ease of use, relative advantage, access to the internet and social influence. The findings have indicated a positive relationship between the variables.

Nonetheless, other scholars have established weak or negative associations between the variables, which is a subject of investigation for future research. Ideally, the perceived usefulness of technology appears to be the most significant predictor variable from studies conducted by Zafiropoulos, Karavasilis, and Vrana (2012), and Carter and Campbell, (2011). The strength of the other variables varies considerably from different studies. The importance of these variables gets validated by the diffusion innovation theory and

technology acceptance model, which are theories used the world over by social scientists to explain the adoption of various innovations including the e-government.

AlAwadhi and Morris (2009), defines e-government as the application of information communication technology for purposes of transforming the effectiveness, efficiency, accountability, and transparency of transactional and information exchanges within the government itself, between government agencies and between government and the citizens to empower all entities involved with information. The exchange of information depends on not only the ability of the government and its agencies to package information but also the citizens' capacity to accept, use and adopt the platforms utilized by the government to disseminate information. Besides, Wamoto (2015), intimates that the fundamental aspiration of executing e-government is to enable governments to become more result-oriented, citizen-centered and effective. Otieno and Omwenga (2015), emphasizes that e-government's primary objective is to transform the delivery of public services and enhance the linkages between the state and the citizens. Just like AlAwadhi and Morris (2009), Otieno and Omwenga (2015), narrows the definition of e-government to an ICT infrastructure connecting and transforming the sharing of information between government-to-citizens (G2C), government-to-government (G2G), and government-to-business (G2B). For purposes of this research, the researcher focuses on one level of the e-government, which is the government-to-citizens. Besides, the operational definition of e-government used in this empirical research is an integration of the definition adopted by Otieno and Omwenga (2015), Wamoto (2015), and AlAwadhi and Morris, (2009). By borrowing from the three researchers, e-government was used in this research to mean a result-oriented and efficient ICT infrastructure utilized by government to transform service delivery and communication between the government, the citizens, and its agencies. Otieno and Omwenga (2015), argues that e-government is a two-dimensional entity with a demand-side and the supply-side. The supply-side focus on the provision of services from the government's perspective, which includes issues such as the creation of ICT platforms, policies, and regulations.

On the contrary, the demand side focuses on how citizens interact with the information provided by government agencies on the e-government platforms. It includes the citizen's perception of the quality of service, privacy issues, trust, user needs and feedback provided (Otieno and Omwenga, 2015). The perceptions of the end-users and how they interact with the platforms largely influences the uptake and adoption of e-government platforms.

Previous researchers such as Lopez-Sisniega (2009), have primarily focused on the supply-side or the organizational perspective on e-government platforms as tools for increasing public value, decentralizing the state's services, increasing efficiency, and effectiveness of the state and civil service agility. Little focus has been made on the demand side focusing on how citizens and especially the youth interact with the e-government platforms (Soomro, Shukui, and Shaikh, 2015). There is an assortment of factors that influence the youth's uptake and interaction with e-government platforms. Partly, these

factors include perceived ease of use (AlAwadhi and Morris, 2009), perceived usefulness (Rabaai, Zogheib, Al Shatti and AlJamal, 2015), social (peer) influence (Ovais, Markkula, and Oivo, 2013), access to the internet (Lopez-Sisniega, 2009) and relativity advantage (Carter and Campbell, 2011).

Perceived ease of use: A qualitative study conducted by AlAwadhi and Morris (2009), in Kuwait to examine the elements that influenced the citizen's uptake of e-government platforms indicated that citizen's perception of ease of use heavily influenced their choice of e-government over manual processes. The researchers interviewed 249 undergraduate students, 63% indicated that e-government platforms should be easy to use to enhance usability especially for populations with difficulties in using advanced operations in mobile gadgets and computers. In this regard, the authors argue that e-government platforms ought to be simplified and easy to utilize to allow prospective users, regardless of their expertise in internet usage, to profit from the services. The results of the research are consistent with the findings of a survey conducted by Park (2009), involving 628 university students from South Korea. The researcher conducted a quantitative study to determine the applicability of the Technology Acceptance Model and how students use and adopt e-learning platforms. The perceived ease of use was elucidated as the measure to which the respondents believed that utilizing e-learning is free from mental effort. The findings indicated that self-efficacy in using computers and Internet-based platforms are the critical determinant influencing perceived ease of use. Besides, another factor that informs the perceived ease of use is the objective usability of the platforms. Moreover, the researcher found that self-efficacy in using e-learning platforms is mainly represented by the user's confidence to find information and interact with the system by employing the necessary skills and competencies.

Interestingly, a study conducted in the District of Kinondoni, Tanzania by Komba (2016), involving 450 respondents differs with the findings of AlAwadhi and Morris (2009), and Park (2009). Komba (2016), found a negative regression relationship between perceived ease of use and uptake of e-government platforms. From the results, the author concluded that the perceived ease of use was an insignificant factor in explaining the uptake of e-government in Tanzania. Carter and Belanger (2004), also agree with the findings made by Komba (2016), and consequently differs with AlAwadhi and Morris (2009), and Park (2009). The authors in a survey involving 140 students from Southeastern Research University sought to determine consumer adoption of e-commerce platforms. From the data analysis, 98% of the respondents used Internet services on a daily basis for various reasons, including the search for jobs, online purchasing, gaming and search for information among other reasons.

Moreover, the multiple regression analysis indicated that the hypothesis that perceived ease of use affected the adoption of e-commerce was not supported. As such, the perceived ease of use lacked a direct relationship with the respondent's intention to utilize and adopt online e-government platforms. However, the author notes that other studies have

discovered a weak relationship between the variables which lacks a substantial influence on the perceived usefulness of the e-government platform. The findings of Carter and Belanger (2004), suggest that perceived ease of use can best be regarded as a precursor of perceived usefulness as opposed to a determinant of adoption.

Perceived Usefulness: Moreover, Komba (2016), defines the perceived usefulness of an e-government platform as the systemic believe that the utilization of the platform enhances the users' capacity to perform a certain job. Mutisya, Kiai, and Ndati (2016), add that the perceived usefulness is one of the greatest predictors of adoption of technologies, which is consistent with the technology adoption model. To demonstrate the importance of perceived usefulness in the uptake of e-government services, Rabaai, Zogheib, Al Shatti and AlJamal (2015), conducted a survey involving 534 students in Kuwait. The scholars employed the Partial Least Squares (PLS) to analyze and explain the association between adoption and perceived usefulness in developing countries using Kuwait as a model paragon. The perceived usefulness had a 0.650 coefficient of determination indicating that the variable could explain 65% of the adoptive relationship. The findings of the study validate the argument made by Mutisya, Kiai, and Ndati (2016), that perceived usefulness was the most reliable and predictive variable influencing the uptake of e-government. These results are also consistent with Komba (2016) findings, which reiterate the direct relationship between perceived usefulness and adoption.

Further, Carter and Belanger (2004), argue that the hypothesis highly supports perceived usefulness. In particular, citizens' desire to adopt state e-government platforms would increase if they perceived the service to be useful. In the past, Kenyan youths were required to fill tax compliance, apply for higher education loans, renew and apply licenses, apply for tenders and passports by visiting the traditional brick and mortar state agencies. However, the use of the internet in carrying out those applications has become a useful medium. In contrast, Park (2009) differs with Komba (2016): Carter and Belanger, (2004): Mutisya, Kiai, and Ndati (2016) and Rabaai, Zogheib, Al Shatti and AlJamal (2015), by arguing that neither perceived ease of use nor perceived usefulness had a substantial and direct impact on behavioral intentionality to adopt and use online platforms. Initially, the technology acceptance model developed by Davis (1989), hypothesized that perceived usefulness had a significant influence on the intentionality to utilize technology, while perceived ease of use was hypothesized to have an inverse impact on adoption. Therefore, the findings of Park (2009), appear to be inconsistent even with those of Davis (1989), who is the pioneer theorist of technology adoption.

Relative advantage: According to Komba (2016), the relative advantage is the measure to which a certain innovation is discerned to be superior to previous technologies. Defined otherwise, Lawson-Body et al., (2014) views relative advantage as the extent to which a certain technology is considered superior to the technology it seeks to replace. However, for purposes of this research, the relative advantage is the measure to which youths perceive the

interaction with e-government platforms as superior over the traditional manual and paper-based system.

Carter and Campbell (2011), conducted a survey in 2010 involving 372 citizens as the representative sample to determine the effect of relative advantage and trust in the adoption and diffusion of the Internet voting system. The scholars deployed the structural equation model to test the hypothesis. The findings of the study indicated that both relative advantages of the system and trust had a direct relationship with the diffusion of the Internet voting system. In essence, Carter and Campbell (2011), argue that relative advantage is a strong predictor variable because users prefer low-cost platforms to access services. As such, affordable costs and benefits emanating from e-government systems create synergies for the adoption. In particular, the author argues that by cutting the marginal costs that voters incur when participating in universal suffrage, the technology can significantly trigger and mobilize political action.

It is therefore arguable that technology elevates the convenience of voting and in extension usage of e-government. For this reason, the scholars argue that relative advantage denotes a one margin cost-cutting strategy, which can mobilize more voters. Therefore, the internet-based government platforms make information sharing and transactions with the government more affordable and accessible. The findings of Carter and Campbell (2011), are supported by the findings of a similar study conducted by Lawson-Body et al., (2014). Lawson-Body et al. (2014), conducted empirical research to determine the innovation characteristics that influence veterans' decisions to embrace e-Government platforms putting into consideration the effect of the digital divide as a moderating variable. Data were collected from a sample of 183 U.S veterans focusing on their interactions with a government website solely created to deliver e-services to the veterans. The regression model used to test the relationship between relative advantage and adoption produced a 0.5 coefficient of determination meaning that relative advantage could solely explain 50% of the adoption rate.

The interesting finding of the results was that the digital divide had no moderating influence on the linkage between relative advantage and the intentionality of veterans to adopt e-government services. The author explains the results by arguing that e-government provides significant benefits and convenience to veterans. In particular, when veterans use online services as opposed to waiting in-line, they end up getting faster services, enjoying convenience and service with fewer errors. While Carter and Campbell (2011), and Lawson-Body et al. (2014), intimate that relative advantage has a strong correlation with the intention to adoption, Zafiroopoulos, Karavasilis, and Vrana (2012), found a weak correlation coefficient of 0.22 between the two variables arguing that most users do not understand the benefits of e-government over manual processes.

Access to the internet: Carter and Campbell (2011), contend that for citizens to enjoy relative advantages brought about by e-government, they must have access to the internet. In particular, the scholars view access to the internet as an antecedent to relative advantage.

As such, access to the internet influences the perception of citizens on e-government. Put in simpler terms; the researchers viewed accessibility to the internet as the trade-off costs of moving goods and people from one point to another. Ideally, travel expenses are important because the less time and money is spent on travel, the more people are willing to visit places within a minimum budget. Based on this analogy, the author contends that access to the internet promotes interaction with e-government platforms due to the relative navigation costs. The propositions made by Carter and Campbell (2011), gets validated by a quantitative and correlation study carried out in Mexico by Lopez-Sisniega (2009). The researcher interviewed a representative sample of 149 municipal workers in Mexico to determine the perceived barriers to effective uptake of e-government platforms. Among the variables investigated was the effect of access to the internet on the uptake of e-government services. From the regression analysis, access to the internet had 0.23 coefficient of determination indicating that access to the internet could explain 23% of e-government adoption. Since the relationship is fairly weak, the researcher proposes that policymakers need to address the fundamental challenge of inequality of internet access as they continue designing and rolling out more platforms.

In retrospect, the author argues that internet access is not just about providing a robust communication infrastructure and gadgets compatible to access the web but also creating awareness, content, and skills targeting users. In essence, this means that the digital divide has to be narrowed down by increasing computer competencies, ICT infrastructure, and hardware. Ford (2010), agrees with the proposition by noting that the internet is a requisite platform for tapping into public e-government services.

Social (peer) influence: Besides, access to the internet, social (peer) influence is another significant variable that affects the adoption of e-government platforms. Al-Shafi and Weerakkody (2010), views social influence as the level at which users get influence from peers to consider the utilization of a particular system. Similarly, Ovais, Markkula, and Oivo (2013), proposes that social (peer) influence is the measure to which a person presupposes that significant others believe that he/she needs to embrace and utilize an innovation. For purposes of this research, social influence is examined based on peer influence since peers are considered to spend time together and can potentially influence one another to embrace and utilize e-government. In this regard, the variable gets predicated on the presumption that youths may adopt e-government based on positive messages shared by peers. The positive messages have a robust implicit pressure on the behavioral intentionality to use and adopt e-government. Ovais, Markkula, and Oivo (2013), conducted an online survey involving a sample of 115 Pakistani citizens exploring the determinants that enable the citizens to embrace government platforms. The findings indicated that peer influence had a positive effect on uptake of e-government; however, the relationship was weaker compared to effort expectancy [read as perceived ease of use].

The findings are also corroborated by the results of another research conducted in Qatar by Al-Shafi and Weerakkody (2010). The researchers used the Unified Theory of

Acceptance and Use of Technology (UTAUT) to explore the uptake of e-government portals in Qatar. The sample size for the study was 1179 citizens surveyed to obtain primary data and a regression analysis employed to examine the effect of social influence, which is one of the variables proposed under the UTUAT Model. The regression analysis on the relationship between social influence and adoption produced a 0.69 Pearson coefficient indicating that social influence could explain 69% of the relationship between the variables. Ovais, Markkula, and Oivo (2013), Al-Shafi and Weerakkody (2010) established that social influence was a weaker variable in explaining adoption compared to performance expectancy and effort expectancy variables.

Theoretical Framework and review:

The foundations of this research were grounded on two theories: the diffusion of innovation theory and the technology acceptance model.

Technology Acceptance Model:

According to Gathungu, and Mungai (2012), the technology acceptance model can be viewed as an information systems theory that envisages how technology end-users decide to embrace and utilize a specific innovation. The theory proposes that when users get confronted with innovation, the tendency to accept is influenced by factors such as when and how to use it (Davis, 1989). The theory is the work of Davis (1989), which initially recognized perceived ease of use and perceived usefulness as the primary determinants that influenced uptake of technology. The scholar defined perceived usefulness as the magnitude to which a user believed that technology would improve his/her production. On the contrary, perceived ease of use explicates the magnitude at which users believe that adopting and utilizing a certain innovation is free from mental or physical effort. Zafiroopoulos, Karavasilis, and Vrana (2012), contends that the objective of the theory is to provide a logical explication of the critical issues that cause computer acceptance and end-user behaviors. The authors add that the model is advantageous because it can be extended once newer innovations are created and introduced.

Moreover, the scholar argues that newer models of the theory have gone beyond perceived usefulness and perceived ease of use as the fundamental constructs to include social influences and cognitive processes. The new paradigm expunged the attitude to use as a weak predictor variable in expounding the intentions to embrace technology. Further, the new model introduced subjective norm, which refers to the perception that if a person thinks that significant others approve/disapprove the use of a particular technology, then he/she should adopt/reject the utilization of the technology. For purposes of this research, the subjective norm is used as a social influence. Another predictor variable introduced by the extended model is the image. In particular, the image is used to mean the perception that using a technology elevates an individual's social prestige within a peer group.

Finally, the extended model introduced elective, which means the degree at which a user perceives the use and adoption of technology as non- mandatory (Zafiroopoulos, Karavasilis,

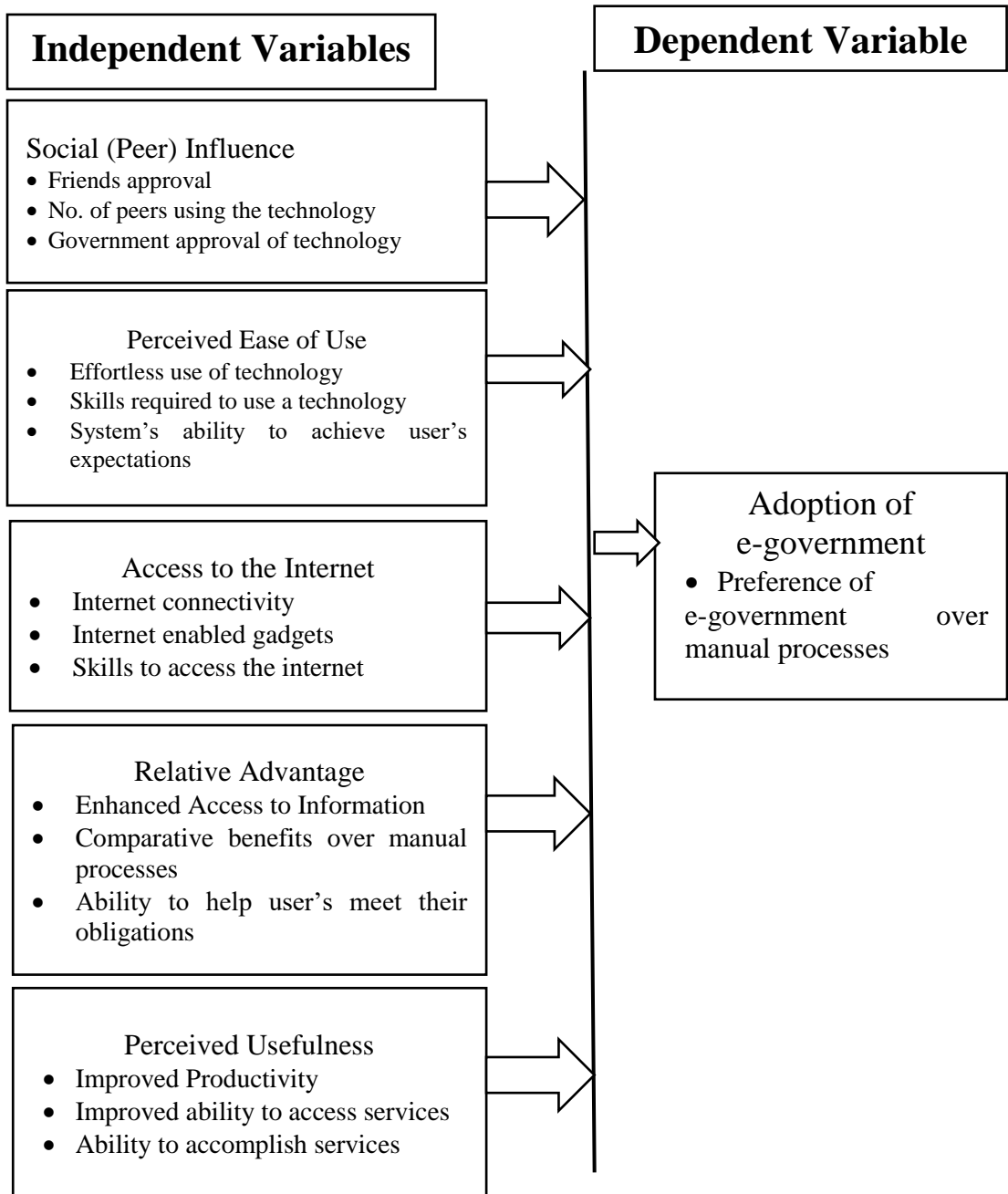
and Vrana 2012). However, Sang and Lee (2009), have since omitted elective and image from the model, arguing that some studies such as Carter and Belanger (2004), had found them to be weak predictor variables in explaining adoption, which explains why those variables were not considered for this research.

Diffusion of Innovation Theory:

The diffusion of innovation theory was founded in 1962 by E.M. Rogers. Alomari (2014), defines innovation as an object, practice or an idea considered as advanced by a user or other components of adoption. Diffusion, on the contrary, is the process by which members of a society correspond to new technology through various channels. Therefore, the diffusion of innovation theory just like the technology acceptance model seeks to explain the process by which an innovation is accepted or rejected by the society (Rana, Dwivedi, and Williams, 2013; Alomari, 2014). Zafiroopoulos, Karavasilis, and Vrana (2012), argues that the diffusion innovation theory is grounded in five primary attributes which include relative advantage, observability, trialability, complexity, and comparability.

In particular, relative advantage explicates the extent to which technology is considered better than the previous technologies. Compatibility is the level at which people perceive innovation as consistent with their firmly held experiences, needs, and values. Complexity is the magnitude at which users perceive a system as arduous to utilize or understand. Moreover, triability refers to the level at which an innovation offers the users a chance to test usability and usefulness though on a limited scale.

Finally, observability is the magnitude at which the outcomes of innovation become visible to other users. The scholar proposes that compatibility, relative advantage, and complexity are the significant predictor variables in presaging the motivation to adopt the usage of technology. The argument is emphasized by Rogers, the pioneer of the theory, Alomari, (2014) and Rana, Dwivedi, and Williams (2013), who argue that previous researchers such as Carter and Belanger (2004), have consistently concluded that complexity, relative advantage, compatibility are the most significant predictor variables when investigating the adoption of different technologies. In retrospect, trialability and observability are weak constructs in explaining the correlation between attitudes towards adoption of e-government. Moreover, Zafiroopoulos, Karavasilis, and Vrana (2012), opine that complexity, which is a construct proposed under the diffusion innovation model is homologous to perceived ease of use construct explored under the technology acceptance model (TAM). It is on this basis that relative advantage and perceived ease of use [complexity] were adopted as variables for this study. Nonetheless, it has to be noted that this theory is criticized for failing to explain costs, technological maturity and risks associated with diffusion.



Methodology: A sample of 380 respondents was drawn from youths aged between 18-35 from Kangundo Constituency, Machakos County, Kenya. Kangundo Constituency is among eight other constituencies in Machakos County, which is about 90Km from the Capital City, Nairobi. For this reason, Kangundo Constituency is considered fairly metropolitan due to its proximity to the city and having an administrative center serving the other neighboring constituencies apart from Machakos Town Constituency. According to the Machakos County Integrated Development Plan, Kangundo Constituency covers about 177.2Km². Besides, the document projects the entire populations of the constituency to be approximately 110,867 by the end of 2017 with a youth population of 30,170.

Moreover, the constituency has four wards, which are Kangundo North, Kangundo Central, Kangundo East, and Kangundo West. The population in these wards is heterogeneous regarding socio-economic capabilities, digital divide, and functional capabilities when it comes to using technologies. Therefore, due to the heterogeneity of the population, the most appropriate sampling technique was the proportionate stratified sampling.

Additionally, the researcher used a mixed research method involving the use of a survey with both open and closed-ended questions. On the other hand, the research design was descriptive, suitable for establishing causal relationships between adoption of e-government and other independent variables such as peer influence, access to the internet, relative advantage, perceived ease of use and perceived usefulness. In essence, the descriptive research design was essential in finding out “what is” and elucidating “what existed.” The questionnaires were issued to all the 380 respondents, and by the end of the study period, 308 questionnaires were duly filled, representing 81% response rate. Regarding data analysis, the researcher used a multiple regression analysis and principal component analysis as a data reduction tool for the multi-item scale used to measure different variables. The regression model for the analysis was as follows:

$$Y=b_0+b_1X_1+b_2X_2 +\dots\dots\dots b_nX_n$$

Findings of the study: Adoption of e-government by the youth is a transformative approach regarding the way young people access government services and interact with government. In this study, 380 respondents were issued with questionnaires to assess the determinants that influence the adoption of online government services by the youth. Of a possible 380 questionnaires, only 308 were dully filled and returned as valid results for the study indicating a response of rate of 81%, which was excellent for the research process. Out of the 308 valid results, 62.3% were filled by male respondents while 37.7% were completed by female participants representing 192 and 116 youths respectively. Of those, 110 participants were aged 18-25years, 174 aged 26-30 years while only 24 respondents were aged between 31-35 years. Besides, seven respondents had attained the elementary level of education while 101 respondents had achieved high school certification.

Additionally, 91 respondents were college graduates while 109 participants had acquired a university education.

Further, all the respondents were asked whether they would prefer online government services over manual processes. The support for e-government platforms was inordinate. Notably, 153 respondents strongly agreed that they would prefer e-government while 122 agreed and 30 respondents were neutral. Conversely, two respondents strongly disagreed on the preference of e-government while one respondent disagreed. Since a majority of the respondents strongly agreed or agreed that they would prefer to use e-government over manual processes, many of them used mobile devices to access e-government services followed by personal computers and then cyber kiosks.

Principal Components Analysis: The Principal Component Analysis technique, which is a sub-branch of factor analysis was used as a data reduction technique on every multiple-item scale used to measure the variables for purposes of generating fewer variables for further data analysis. Notably, three items were used to measure Access to the Internet (AI) while five questions were used to measure perceived ease of use (PEOU), perceived usefulness (PU), social Influence (SI) and Relative Advantage (RA) respectively. In this regard, the principal component analysis technique was used to conduct data reduction on the 23 items contained in the Likert scales. The KMO measure of sampling adequacy was 0.855, indicating that the data was significant enough to warrant the use of factor analysis for data reduction. On the other hand, Bartlett's test of sphericity was 0.000, which was less than p-value of 0.001, indicating that the variability in the data was significant for factor analysis as shown in table 10 below.

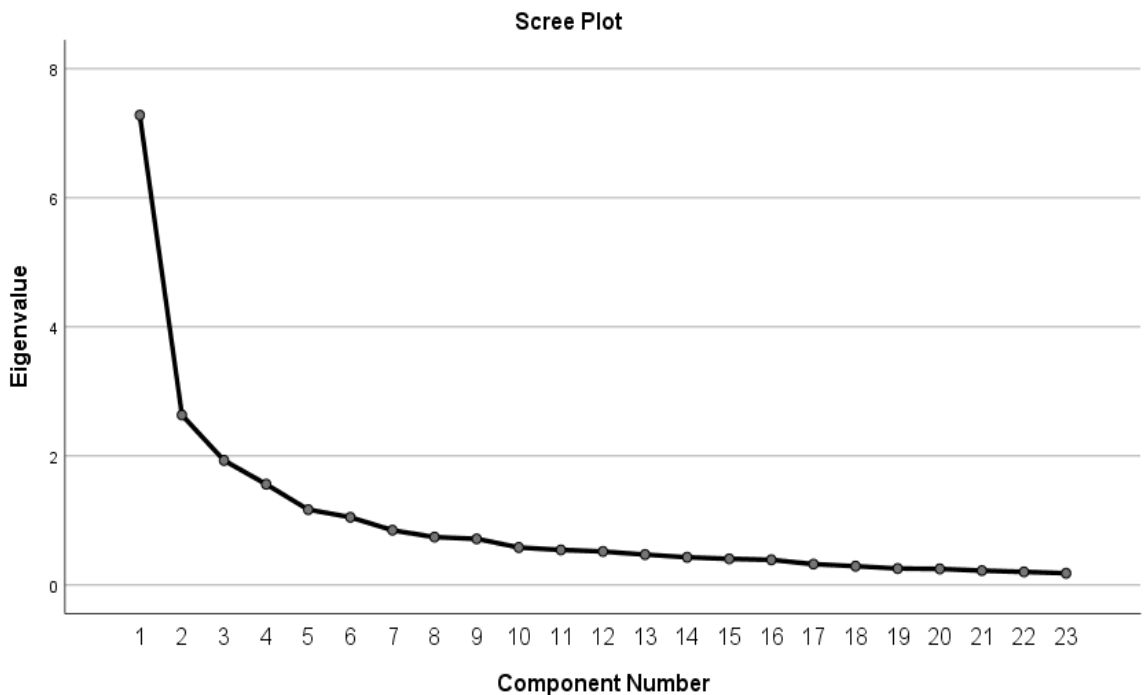
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.855
Bartlett's Test of Sphericity	Approx. Chi-Square	3490.616
	df	253
	Sig.	.000

Further, the researcher employed the latent root analysis of the five variables to determine the values that needed to be retained for further detailed analysis. In this regard, the general practice in factor analysis is to maintain components with eigenvalues exceeding 1 to assist in further investigations. For purposes of isolating those components, the total variances explained by the components were generated, and a scree plot graph to confirm the results as shown in table 11 below.

Table 11: Total Variance Explained			
Components	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	7.280	31.654	31.654
2	2.634	11.450	43.104
3	1.931	8.394	51.498
4	1.562	6.791	58.290
5	1.168	5.077	63.366
6	1.050	4.563	67.930

The table above shows that six components can be extracted from factor analysis with an eigenvalue of more than 1. The six components yield a 67.930 cumulative variances, meaning that the six components can explain 67.9% of the total variance of independent variables. Below is figure 11, which is a scree plot.

Figure 11.0. : Scree Plot



	Component					
	1	2	3	4	5	6
PEU4	.708					
PEU1	.698					
SI1	.695					
PEU5	.684					
PEU2	.636					
PEU3	.625					
PU1	.493					
RA4		.742				
RA5		.739				
RA2		.719				
RA3		.712				
RA1		.690				
SI3			.715			
SI2			.677			
SI5			.650			
SI4			.630			
AI1				.817		
AI3				.682		
AI2				.619		
PU2					.777	
PU3					.639	

PU5						.887
PU4						.809

It is critical to indicate that only factor loadings above 0.3 were extracted and those below the cut-off level were suppressed. Since the extracted factor loadings, in this case, are above 0.4, it is plausible to indicate that the factors loaded highly on a single factor indicating a strong unidimensionality of the scales. It is, therefore, valid to conclude that the 23-item Likert scale measuring adoption of e-government services was unidimensional.

4.6. Correlation and Regression of individual independent Variables against Adoption:

The researcher conducted a linear regression analysis using the factors extracted from the principal component analysis technique on each of the independent variables against the dependent variable to test the significance and strength of the relationship.

4.6.1. Accessibility to the internet (AI):

The research question, in this case, was “how does accessibility to the internet affect the uptake of e-government services by Kangundo constituency youths?” Therefore, results of access to the internet were regressed against adoption to determine the correlation and strength of the relationship. The results are tabulated in table 12 below.

Model	R	R Square	Adjusted R ²	Sig. F Change
1	.353 ^a	.125	.122	.000

a. Predictors: (Constant), Accessibility:

The results of the model were as follows: $R(306) = 0.353$, $p < 0.5$. In this case, the Pearson's correlation coefficient between adoption and internet accessibility was 0.353, which is a weak positive relationship between the two variables. The weak network connectivity in some rural areas and the cost of accessing the internet could explain the weak correlation. Two of the respondents indicated the following regarding the issue:

The Internet is accessible in my urban residence, but in my rural area, it is weak. The poor internet connectivity forces me to visit government offices for services that otherwise I could have accessed online when I am in Nairobi (Respondent No. 1066).

The other respondent talked about the cost of internet and speed of internet offered by different providers as an impediment to access online government services as quoted in the statement below.

Safaricom and Airtel are doing good. Nonetheless, Safaricom is more expensive. The affordable rate, which is telecom is not accessible in my area. Therefore, I suggest that the government considers offering high-speed and affordable internet even in rural areas to enable us to enjoy online services (Respondent No. 1086).

The R-square is 0.125 indicating that singly accessibility can only explain 12.5% total variance of adoption of e-government. It is, therefore, fit to conclude that accessibility to the internet can separately explain 12.5% of the intention to adopt e-government platforms among youths in Kangundo constituency. However, the significance of these results shall be confirmed using the multiple regression analysis.

Regarding the coefficients, the table 13 below summarizes the output of the regression analysis.

Model	Coefficients	T	Sig.
(Constant)	1.627	41.934	.000
Accessibility (AI)	.257	6.610	.000

Based on the coefficients, the simple linear regression equation can be summarized as follows:

$$\text{Adoption} = 1.627 + 0.257(\text{Accessibility})$$

4.6.2. Perceived ease of use (PEOU)

The research question, in this case, was “how does the perceived ease of use of technology motivate the uptake of e-government platforms by youths in Kangundo constituency? The output for the regression analysis is represented in the table below.

Model	R	R Square	Adjusted R ²	Sig. F Change
1	.388 ^a	.150	.148	.000

Predictors: (Constant), Perceived Ease of Use (PEOU)

The results of the correlation were as follows: $R(306) = 0.388$, $p < 0.05$. Based on the results, the Pearson's correlation coefficient was 0.388 indicating a weak positive correlation between perceived ease of use and adoption of e-government platforms by youths. The weak relationship could be attributed to slow processing time, the poor attractiveness of the interfaces and the website's navigability according to Respondent No. 1256.

Government websites should have graphical user interfaces that make it easier to navigate from one stage to another to reduce the processing time.

Moreover, the R-square was 0.15 showing that the perceived ease of use could explain 15% of the total variance of adoption. Further, table 14 below indicates the coefficients used to derive the simple linear regression equation of the variable.

Model	Coefficients	t	Sig.
(Constant)	1.627	42.557	.000

Perceived Ease of Use (PEOU)	.282	7.360	.000
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a. Dependent Variable: Adoption

The simple linear regression is as follows:

$$\text{Adoption} = 1.627 + 0.282 (\text{Perceived Ease of Use})$$

4.6.3. Perceived Usefulness (PU)

The research question involving this variable was “how does the perceived usefulness of technology affect the uptake of e-government platforms by Kangundo constituency youths?” For purposes of determining the effect, regression analysis was conducted involving adoption, and perceived usefulness of technology and the output got summarized in table 15 below.

Model	R	R Square	Adjusted R ²	Sig. F Change
1	.369 ^a	.136	.134	.000

a. Predictors: (Constant), Perceived Usefulness

The correlation results indicate that $R(306) = 0.369$, $p < 0.05$ so that the Pearson's correlation coefficient is 0.369 indicating a weak positive relationship between adoption of e-government platforms by the youth and perceived usefulness. Regarding the weak relationship, a respondent expressed concerns about the speed of the internet connectivity and security of personal data collected from the platforms as recorded in the following statement:

Make it possible to have high-speed internet in remote areas for efficiency. Also, the government should consider enhancing its server security to avoid insider intruders like workers who interfere with people's transactions. Further, the government should also enhance the processing speed of these platforms (Respondent No. 1067).

Moreover, R-square, which is a measure of the extent to which the total variation of a dependent variable gets explained by the independent variable was 0.136. In this regard, it is plausible to conclude that perceived usefulness of the technology could explain 13.6% of adoption of e-government by the youth in Kangundo constituency. Table 16 below is a summary of the coefficients of the model.

Model	Coefficients	t	Sig.
(Constant)	1.627	42.210	.000
Perceived Usefulness	.268	6.950	.000

a. Dependent Variable: Adoption

Based on the results of the coefficients, the simple linear regression equation is a follows:

$$\text{Adoption} = 1.627 + 0.268 (\text{Perceived Usefulness})$$

4.6.4. Social influence (SI)

For social influence, the research question was “how does social (peer) influence affect the uptake of e-government platforms by Kangundo constituency youths?” The correlation and regression analysis yielded the results tabulated in Table 17 below.

Model	R	R Square	Adjusted R ²	Sig. F Change
1	.271 ^a	.073	.070	.000

a. Predictors: (Constant), Social Influence

In this case, the results of the correlation analysis were $R(306) = 0.271$, $p < 0.05$, meaning that the Pearson correlation coefficient was 0.271 indicating a weak positive correlation between social influence and adoption of online government by the youth. Despite having a weak correlation coefficient, some respondents were affirmative concerning the importance of peer-recommended technology. One of the respondents noted that:

Peer recommended technology is always easy to learn and use. Ideally, some youths tend to find sources of income from the technologies, which is essential in countering youth unemployment (Respondent No. 1304).

Another respondent observed that:

My peers have prior knowledge of what is happening currently, which is useful to me whenever making some decisions (Respondent No. 1268).

Further, R Square was 0.073 meaning that social or peer influence could explain 7.3% of adoption of e-government by youths. Table 18 below shows the coefficients used to derive the regression model for the two variables.

Model	Coefficients	T	Sig.
(Constant)	1.627	40.747	.000
Social Influence	.197	4.917	.000

a. Dependent Variable: Adoption

Therefore, the simple linear regression equation for the two variables is:

$$\text{Adoption} = 1.627 + 0.197 (\text{Social Influence})$$

4.6.5. Relative Advantage:

Regarding relative advantage, the research question involved “how does the relative advantage of e-government services affect uptake of e-government services by Kangundo constituency youths?” The results of the regression and correlation analysis were as follows: $R(306) = 0.820$, $p < 0.05$.

Model	R	R Square	Adjusted R ²	Sig. F Change
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1	.820 ^a	.673	.672	.000
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Predictors: (Constant), Relative Advantage

Accordingly, the results of the correlation analysis indicated a strong positive correlation of $R = 0.820$ between relative advantage and the adoption of e-government platforms by the youth. The strong correlation was attributed to different factors such as the reduction of corruption in government offices, cost-effectiveness and saving time as noted in the response quoted below.

These services have helped a lot in reducing corruption in government offices. Also, online government services help me save time by avoiding long queues. The services are also cost-effective since I do not have to travel long distances to access government services (Respondent No. 1030).

Further, R-square was 0.672 leading to the conclusion that relative advantage could statistically explain 67.2% of adoption of e-government by the youth. Finally, the regression coefficients for the relationship was as shown in table 20 below:

Model	Coefficients	t	Sig.
(Constant)	1.627	68.601	.000
Relative Advantage	.596	25.097	.000

Dependent Variable: Adoption

Based on the results, the simple linear regression equation showing the association between the two variables was as follows:

$$\text{Adoption} = 1.627 + 0.596 (\text{Relative Advantage})$$

4.7. Testing the Fitness of the Model

For purposes of testing the fitness of the model, multiple regression analysis was applied to examine the strength of the independent variables in predicting the adoption of online government services by the youth. The output of the multiple regression analysis was tabulated in Table 21 below.

Model	R	R Square	Adjusted R ²	F Change	Sig. F Change
1	.830 ^a	.688	.683	133.459	.000

The results indicate that $R(302) = 0.830$, $p < 0.05$ so that Pearson's correlation coefficient was 0.830. As such, the results indicate a high degree of correlation between the predictor and predicted variables. Besides, R^2 was 0.688 meaning that the independent variables could only explain 68.8% of the total variance of the dependent variable. In retrospect, the measure shows that relative advantage, social influence, access to the internet, perceived usefulness and perceived ease of use could only account for 68.8% of the determinants of adoption of e-government by the youth while other variables outside the

model could explain the remaining 31.2%. The finding demonstrates a strong explicatory capacity of the model in determining the adoption of e-government. Moreover, the p-value of 0.0005 was less than 0.05 showing that the results were statistically significant in predicting adoption. More importantly, the F-ratio was $F(5, 302) = 133.459$, $p < 0.05$. The F ratio measures whether the model fits, and from the results, it is correct to conclude that the regression model fits the data. The results of the F-ratio are contained in the ANOVA table 22 below.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	111.569	5	22.314	133.459	.000 ^b
	Residual	50.493	302	.167		
	Total	162.062	307			

The coefficients of the multiple regression analysis are presented in table 23 below.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.627	.023		69.815	.000
	Accessibility	.017	.027	.023	.614	.540
	Perceived Ease of Use (PEOU)	-.022	.033	-.031	-.677	.499
	Perceived Usefulness	.099	.032	-.136	-3.066	.002
	Social Influence	.064	.026	.089	2.439	.015
	Relative Advantage	.636	.030	.876	21.011	.000

a. Dependent Variable: Adoption

The results show that two variables were not significant in the model. In particular, accessibility to the internet had a p-value of 0.540, which is greater than 0.05 meaning that the probability that the relationship between adoption and accessibility was below 5% was not supported. Therefore, accessibility was dropped for being a weak predictor of adoption of e-government among the youth. Besides, perceived ease of use had a p-value of 0.499,

which was greater than 0.05 meaning that the variable was not significant in predicting adoption. For this reason, perceived ease of use was removed from the model for being weak and insignificant in predicting adoption of e-government among the youth. As such, the multiple regression equation for the model was as follows:

$$\text{Adoption} = 1.627 + 0.064 (\text{SI}) + 0.099 (\text{PU}) + 0.636 (\text{RA})$$

Discussion:

Access to the internet: Regarding the research objectives, access to the internet was a weak determinant of adoption of online government services. The correlation results indicated that $R(306) = 0.353$, $p < 0.5$, $R^2 0.125$, meaning that accessibility could explain 12.5% of the total variance of adoption to the internet. While the association between the two variables were weak, the findings were in tandem with the results of a study conducted by Lopez-Sisniega (2009) in Mexico. The results of the study had a 0.23 coefficient of determination (R^2) meaning that access to the internet could only explain 23% of the total variance. In fact, Lopez-Sisniega (2009) argues that access to the internet was not just about high-speed internet infrastructure or possessing internet-enabled gadgets but the entire spectrum of creating awareness, proper content and ensuring that users had requisite skills to access the internet. Despite the justification, the multiple regression analysis, which analyses the association between all the independent and dependent variables found that accessibility was not significant in predicting adoption of e-government because it had a p-value of 0.540, which exceeded 0.05. For this reason, access to the internet was removed from the model for being a weak predictor variable and with an insignificant capacity to explain the total variance.

Perceived ease of use: The other research objective involved determining the extent to which perceived ease of use influences the adoption of e-government among the youth in Kenya. The results of the correlation and regression analysis were as follows: $R(306) = 0.388$, $p < 0.05$, $R^2 0.15$. The results indicated that perceived ease of use was significant in predicting the adoption of e-government, yielding a coefficient of determination (R^2) of 0.15. The results of the R square indicated that perceived ease of use could only explain 15% of the total variance of adoption.

Further, analysis of this variable using multiple regression analysis found perceived ease of use to have a p-value of 0.499 greater than 0.05 meaning that statistically, the variable could not explain the adoption of e-government significantly. For this reason, perceived ease of use was removed from the model. The findings were supported by studies conducted by other scholars on the same subject. A survey conducted by Komba (2016) and another led by Carter and Belanger (2004), found that perceived ease of use was insignificant and not supported in predicting the adoption of e-government. Notably, Carter and Belanger (2004) went ahead to indicate that the variable lacked a direct relationship with the adoption of e-government and the variable was a precursor of perceived usefulness as opposed to being a determinant of e-government uptake. In fact, these findings were substantiated by Davis (1989), the pioneer of TAM, who not only found a weak relationship between

perceived ease of use and uptake of technologies but also indicated that the relationship was inverse.

Perceived usefulness: Concerning perceived usefulness, the objective of the study was to determine whether perceived usefulness influenced the uptake of e-government technologies among the youth. The correlation results indicated that $R(306) = 0.369$, $p < 0.05$, $R^2 = 0.136$, showing that the correlation between adoption and perceived usefulness was weak. Besides, R^2 was 0.136 meaning that perceived usefulness could only explain 13.6% of the total variance of adoption. Further analysis using multiple regression analysis showed that perceived usefulness had a p-value of 0.002, which was less than 0.05 intimating that the variable was significant in explaining adoption. In support of this finding, Komba (2016): Carter and Belanger, (2004): Mutisya, Kiai, and Ndati (2016) and Rabaai, Zogheib, Al Shatti and AlJamal (2015) found that perceived usefulness was a strong variable in predicting adoption of online government services. On the contrary, Park (2009) found that both perceived ease of use and perceived usefulness lacked direct and substantial predictive value in predicting adoption of online government services.

Social (Peer) Influence: Further, social (peer) influence was the other variable tested to determine its effect on uptake of online government services by the youth. The correlation results showed that $R(306) = 0.271$, $p < 0.05$, $R^2 = 0.073$, indicating that the correlation between adoption and social influence was weak with a Pearson's coefficient of 0.271. On the other hand, the coefficient of determination was 0.073 indicating that social influence could only explain 7% of the total variance in the adoption of online government services by the youth. Even though this predictive strength was weak, the variable was retained because it had a significance level of 0.015, which is less than 0.05. Based on the p-value results, it was concluded that social influence was significant in predicting the adoption of e-government, and therefore, the variable was not removed from the model. The literature review supports this finding. In fact, Ovais, Markkula, and Oivo (2013), and Al-Shafi and Weerakkody (2010) found that social influence was a weak variable for explaining the adoption of new technologies.

Relative Advantage: The final objective of the study was to examine whether the relative advantage was significant in determining the uptake of online government services by the youth. The correlation results indicated that $R(306) = 0.820$, $p < 0.05$, $R^2 = 0.673$, meaning that there was a strong positive correlation between adoption and relative advantage of using online services over manual processes. Besides, R^2 of 0.673 indicates that relative advantage explained 67% of the total variance of adoption. Further, analysis to determine the significance of the variable indicated that relative advantage had a p-value of 0.0005 meaning that the variable was significant in predicting adoption. Therefore, in this study, it was concluded that relative advantage was the most potent variable in determining the uptake of e-government services among the youth. These findings were supported in the literature review because Carter and Campbell (2011), and Lawson-Body et al. (2014) in two different studies found that relative advantage was a strong predictor variable of

adoption arguing that users preferred to use low-cost technologies. On the contrary, Zafiroopoulos, Karavasilis, and Vrana (2012) found a weak relationship between the two variables.

Conclusion: The findings of this study were consistent with the empirical review. In particular, the results of this study established that accessibility to the internet, perceived usefulness and perceived ease of use were weak predictor variables for predicting the intention by youths to adopt e-government services. The variables were consequently dropped from the regression model for lacking significant predictive value or causing a negative relationship with the predicted variable. However, social influence had a weak predictive value but was retained for having significant value in determining the intention to use e-government services among the sampled youths. More importantly, the relative advantage was found to be the strongest predictor variable in explaining the intention of youths to adopt and use online government services.

Goodness of fit: Finally, the goodness of fit test found that the model was significant as the results indicated $F(5, 302) = 133.459, p < 0.05$. Notably, the p-value in the ANOVA table was 0.0005 less than 0.05, meaning that the regression model was statistically significant in predicting the dependent variable. Based on this finding and the analysis of the results, the regression model was:

$$\text{Adoption} = 1.627 + 0.064 (\text{SI}) + 0.099 (\text{PU}) + 0.636 (\text{RA})$$

Recommendations for policy and practice

- a. On accessibility to the internet, government policymakers need to consider creating a framework to help create public awareness and develop responsive and user-friendly websites. In particular, policymakers need to enhance awareness of e-government platforms, create user-friendly content, develop responsive websites, increase the affordability of data bundles and make sure that government websites are optimized for mobile phone usage before rolling out e-government platforms targeting the youth.
- b. Regarding perceived ease of use, training youths on how to use e-government services shall be of the essence. It is essential for the government to train trainers who will then get deployed to constituency Huduma Centers to share the knowledge with youths to make it easier for them to use online services, especially those from far-flung areas without proper access to computers and fast internet.
- c. Concerning perceived usefulness, it is critical that the government considers redeploying e-government services to ward levels to reach more youths. In essence, the government needs to set up more cyber kiosks and public hotspots in local administrative units to make youths start to appreciate the propriety of using online government platforms.
- d. Further, on social influence, the role of public influencers and endorsers cannot be overstated. Notably, youths get influenced easily by people they consider significant in their

lives. As such, the government needs to employ brand endorsers such as local artists, politicians, and musicians to endorse e-government platforms that target the youth before rolling out the technologies.

e. Finally, regarding relative advantage, the cost of accessing government services is a great concern among the youth. It is, therefore, necessary for the government to keep reviewing the cost of accessing the internet based on time, effort and expenses to make sure those parameters are kept affordable compared to manual processes to ensure that youths are enticed to use online services since most of them lack a stable source of income to sustain expensive services.

Recommendations for future research and research gap

Since the independent variables used in this study explained 68.8% (R²) of the total variance, it is essential to conduct further research in the future involving other variables such as youth culture, privacy, website security, political climate and trust among other variables to account for the remaining variance. Further, one of the research gaps identified during the study the absence of a study focusing on the effect of gender on the adoption of e-government services. It is critical for scholars to research to determine whether men adopted technology in the same way as women.

References:

1. Alateyah, S. A., Crowder, R. M., and Wills, G. B. (2014). Identified factors affecting the intention of Saudi Arabian citizens to adopt e-government services. *International Journal of Innovation, Management, and Technology*, 5(4), 280-286. doi:<http://dx.doi.org/10.7763/IJIMT.2014.V5.527>
2. AlAwadhi, S., and Morris, A. (2009). Factors influencing the adoption of e-government services. *Journal of Software*, 4(6), 584-590. <http://www.jsoftware.us/vol4/jsw0406-13.pdf>
3. Alomari, M. K. (2014). Discovering citizens reaction toward e-government: factors in e-government adoption. *Journal of Information Systems and Technology Management: JISTEM*, 11(1), 5-20. Retrieved from <https://search.proquest.com/docview/1530083692?accountid=30552>
4. Al-Shafi, S., and Weerakkody, V. (2010). Factors affecting e-government adoption in the state of Qatar.
5. Carter, L., and Belanger, F. (2004). Citizen adoption of electronic government initiatives. In *System Sciences, 2004. Proceedings of the 37th Annual Hawaii International Conference on* (pp. 10-pp). IEEE.
6. <https://pdfs.semanticscholar.org/4606/6a2195f320de377ea37076fa58150a76aa5f.pdf>
7. Carter, L., and Campbell, R. (2011). The impact of trust and relative advantage of internet voting diffusion. *Journal of Theoretical and Applied Electronic Commerce Research*, 6(3), 28-42. Retrieved from <https://search.proquest.com/docview/915869617?accountid=30552>

8. Communication Authority of Kenya, (2016). ICT Access Gaps Study. Communication Authority of Kenya. Retrieved from <http://www.ca.go.ke/images/downloads/RESEARCH/ICT%20Access%20Gaps%20Report-April%202016%20.pdf>
9. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319-340. http://www.academia.edu/download/32678146/Perceived_Usefulness.docx
10. Ford, W. G. (2010). An examination of the utilization of electronic government services by minority small businesses. Palmer Graduate Library School.
11. Gathungu, J., and Mungai, A. N. (2012). Contextual Factors Affecting E-Government Strategy Implementation and Its Impact on Public Sector Performance in Kenya. *Journal of Arts and Humanities*, 1(1), 143. <https://theartsjournal.org/index.php/site/article/viewFile/14/14>
12. Komba. M. M (2016). Adoption of E-Government Services Among Citizens in the Selected Districts of Tanzania. *International Journal of Computer Science And Technology*, 7(3): 36-42 <http://www.ijcst.com/vol73/1/7-mercy-mlay-komba.pdf>
13. Lawson-Body, A., Willoughby, L., Illia, A., and Lee, S. (2014). Innovation characteristics influencing veterans' adoption of e-government services. *The Journal of Computer Information Systems*, 54(3), 34-44. Retrieved from <https://search.proquest.com/docview/1526661036?accountid=30552>
14. Lopez-Sisniega, C. (2009). Barriers to electronic government use as perceived by citizens at the municipal level in Mexico (Order No. 3364168). Available from Business Premium Collection. (305128426). Retrieved from <https://search.proquest.com/docview/305128426?accountid=30552>
15. Machakos County, (2015). Machakos County Integrated Development Plan. Retrieved from <http://www.machakosgovernment.com/documents/CIDP.pdf>
16. Mpinganjira, M. (2012). Factors affecting the adoption of e-government services: A conceptual model. *African Journal of Business Management*, 6(11), 4245-4249. doi:<http://dx.doi.org/10.5897/AJBM11.2579>
17. Mutisya, C. Kiai, W., and Ndati. N., (2016). Extent of Adoption And Usage of Mobile Phone Services in Empowering Women Entrepreneurs in Machakos County, Kenya. *Journal Of Humanities And Social Science* 21(7): 2016, 48-59. Retrieved from <http://iosrjournals.org/iosr-jhss/papers/Vol.%2021%20Issue7/Version-3/E02107034859.pdf>
18. Otieno, I., and Omwenga, E. (2015). Citizen-centric critical success factors for the implementation of e-government: A case study of Kenya Huduma Centres. In *IST-Africa Conference, 2015* (pp. 1-9). IEEE. https://profiles.uonbi.ac.ke/eomwenga/files/journal_vol7no2_9_citizen-centric_critical_success_factors_io_eio_0.pdf
19. Ovais, M., Markkula, J., and Oivo, M. (2013). Factors affecting e-government adoption in Pakistan: a citizen's perspective. *Transforming Government: People, Process, and Policy*, 7(2), 225-239.

20. Park, S. Y. (2009). An Analysis of the Technology Acceptance Model in Understanding University Students' Behavioral Intention to Use e-Learning. *Educational Technology and Society*, 12 (3), 150–162. http://www.ifets.info/journals/12_3/14.pdf
21. Rabaai, A. A., Zogheib, B., Al Shatti, A., and AlJamal, E. M. (2015). Adoption of e-government in developing countries: the case of the state of Kuwait. *Journal of Global Research in Computer Science*, 6(10). <https://www.rroj.com/open-access/adoption-of-egovernment-in-developing-countries-the-case-of-the-state-of-kuwait.php?aid=62403>
22. Rana, N. P., Dwivedi, Y. K., and Williams, M. D. (2013). Evaluating alternative theoretical models for examining the citizen-centric adoption of e-government. *Transforming Government: People, Process, and Policy*, 7(1), 27–49.
23. doi:<http://dx.doi.org/10.1108/17506161311308151>
24. Sang, S., and Lee, J. D. (2009). A conceptual model of e-government acceptance in public sector. In *Digital Society, 2009. ICDS'09. Third International Conference on* (pp. 71-76). IEEE.
25. Soomro, K. A., Shukui, T., and Shaikh, S. A. (2015). Factors Motivating Youth for the Adoption of e-Government Services in Pakistan. *Asian Journal of Social Sciences and Humanities* Vol, 4, 4. [http://www.ajssh.leena-luna.co.jp/AJSSHPDFs/Vol.4\(4\)/AJSSH2015\(4.4-06\).pdf](http://www.ajssh.leena-luna.co.jp/AJSSHPDFs/Vol.4(4)/AJSSH2015(4.4-06).pdf)
26. Sorn-in, K., Tuamsuk, K., and Chaopanon, W. (2015). Factors affecting the development of e-government using a citizen-centric approach. *Journal of Science and Technology Policy Management*, 6(3), 206-222. Retrieved from <https://search.proquest.com/docview/1712602696?accountid=30552>
27. United Nations Department of Economic and Social Affairs, (2016). *E-government Survey 2016: E-Government in Support of Sustainable Development*. Economic and Social Affairs.
28. Wamoto, S. O. (2015). E-government Implementation in Kenya, an evaluation of Factors hindering or promoting successful e-government implementation. *International Journal of Computer Applications Technology and Research*.4(2):2015, 906 – 915 <http://www.ijcat.com/archives/volume4/issue12/ijcatr04121006.pdf>
29. Zafiropoulos, K., Karavasilis, I., and Vrana, V. (2012). Assessing the adoption of e-government services by teachers in Greece. *Future Internet*, 4(2), 528-544. doi:<http://dx.doi.org/10.3390/fi4020528>
<http://search.proquest.com/business/docview/1525785313/fulltextPDF/BB986CBF82F040B0PQ/1?accountid=30552>