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*Full Length Research Paper*

# Factors affecting adoption of e-government services: A conceptual model

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**Many African governments have invested significant amounts of capital in e-government initiatives. This is mainly due to recognised potentials of e-government to help improve public service delivery and accountability. While the majority of e-government services in the continent are targeted at citizens in general, not many studies have been done to help understand factors that impact on citizen's willingness to adopt e-government services. The objective of this paper is to explore factors that can help explain adoption of e-government services in general and using the findings to develop a conceptual model that shows how the various factors work together to influence adoption of e-government services. The proposed model builds on the constructs of the Technology acceptance model (TAM) as proposed by Davis in 1986. The proposed model will assist governments to understand factors that need to be managed in order to ensure adoption of e-government services by ordinary citizens.**

**Key words:** E-government, perceived risk, degree of intrusiveness, technological support, technology acceptance model, citizen adoption.

## INTRODUCTION

The number of internet users in Africa has grown significantly over the past decade. According to Internet World Stats (2011) there are now a total of 118 million users of internet in Africa compared to 4.5 million in the year 2000. This represents a growth of over two thousand percent. Internet penetration as a percentage of the population now stands at 11.4% in the continent. In South Africa alone the number of internet users stands at 6.8 million or 13.9% of the population (Internet World Stats, 2011).

The rapid rate at which internet adoption is growing in Africa has revolutionalised not only the way people communicate with each other but has also resulted in rapid growth in number of businesses using the internet to connect with their customers. More and more businesses are using the internet as a platform to sell their goods and services. Al-rajehi (2007) observed that increased use of information and communication technologies, the internet in particular and the rapid growth of e-commerce in the private sector worldwide has put growing pressure on the public sector to consider providing some of its services electronically – a phenomenon commonly referred to a e-government. The OECD (2003) defined e-government as the use of information and communication technologies, particularly the internet, as a tool to achieve better governance. The World Bank Group (2010) noted that e-government initiatives serve a variety of different ends including better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. They further noted that the resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions. Mutula (2008) observed that traditional-based government systems are characterized by transactions that involve manual physical filing systems which are burdened by enormous

movements of correspondence, duplication of files, wastage of paper, difficulty in accessing information in files, loss of data and general inefficiency of operations. E-government initiatives can thus help governments improve on service delivery and accountability.

According to the United Nations e-government survey (UN, 2010) e-government initiatives are now common in both developed and developing countries. The survey lists a total of 183 countries around the world that have ongoing e-government initiatives. In South Africa, e-government initiatives have aimed at addressing three main domains namely government to government (G2G), government to citizen (G2C) and government to business (G2B) relationships. G2G initiatives are mainly aimed at promoting cooperation between government departments as they often depend on each other in order to effectively deliver services. G2C initiatives deal with relationships between government and citizens by among other things allowing citizens access to information and services. All national government departments in South Africa as well as provincial governments have websites that provide information to members of the public. G2B e-services consists of electronic interactions between business and government through facilities that allow access to business information, access to application forms and other government services aimed at the private business sector.

### Problem statement and research objectives

The establishment of e-government services is often associated with deployment of significant amount of resources both in financial and non-financial terms. Considerable acceptance of e-government services by targeted users is therefore a very important factor that needs to be considered in order to help justify government spending in this area as well as ensure that the benefits associated with delivery of government services using e-channels are realised by most people in society. Governments thus need to put in place measures to help ensure wide adoption of their e-services. Such measures need to be based on a proper understanding of factors that may impact on adoption of such services.

A review of literature of e-government services however shows that this area of research is widely under researched worldwide. Gilbert et al (2004) noted that government cannot meet citizens' adoption targets if they fail to understand why citizens adopt e-government services over traditional delivery channels. This paper is aimed at (i) exploring the factors that can be used to explain adoption of e-government services in general and (ii) proposing a conceptual model that shows how the various factors relate in influencing e-government adoption. The focus of the paper is on e-government services provided through internet and targeted at members of the general public.

## LITERATURE REVIEW

According to Guinea and Markus (2009), information technology usage is fundamentally an intentional behaviour that is driven by conscious decisions to act. It is thus not surprising that most studies on adoption of information technologies make use of intention-based models including the Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen (1975), the Theory of Planned Behaviour (TPB) developed by Ajzen (1985) and the Technology Acceptance Model developed by Davis (1986) to help explain adoption of new technologies. Kukfka et al. (2004) noted that intention-based models focus on the behavioural intentions of individuals to predict adoption and use of technology. Polancic et al. (2010), as well as Yi et al. (2006) observed that the Technology Acceptance Model (TAM) is the most widely used model in trying to understand adoption of information technologies. TAM is an adaptation of the Theory of Reasoned Action and was specifically developed to help explain acceptance of Information technology systems.

According to TAM, behavioural intention to use or not use information technology is influenced by two main factors namely 'perceived usefulness' and 'perceived ease of use' of the technology. The two factors together influence attitude towards technology which inturn influences intention to use and actual usage of information technology systems. Davis (1989) defined perceived usefulness as the degree to which a person believes that using a particular system would enhance his/her job performance; and perceived ease of use as the degree to which a person believes that using a particular system would be free of effort. TAM further posits that perceived usefulness is influenced by perceived ease of use and that both perceived usefulness and perceived ease of use are influenced by factors external to the individual. Davis (1989) noted that external variables in the TAM model refer to such variables as objective system design characteristics, user involvement in design and the nature of the implementation process.

Although, TAM has been widely used across different information systems to help understand factors affecting adoption, the model is not without criticism. Wang et al. (2003) noted that although the goal of TAM was 'to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of end user computing technologies and user populations', the two main constructs in the model namely perceived usefulness and perceived ease of use may not fully explain users behavior towards newly emerging information technologies. It is thus necessary to search for additional factors that can help better predict acceptance of information technologies in particular e-government services.

Pakkarainen et al. (2004) noted that organizations that

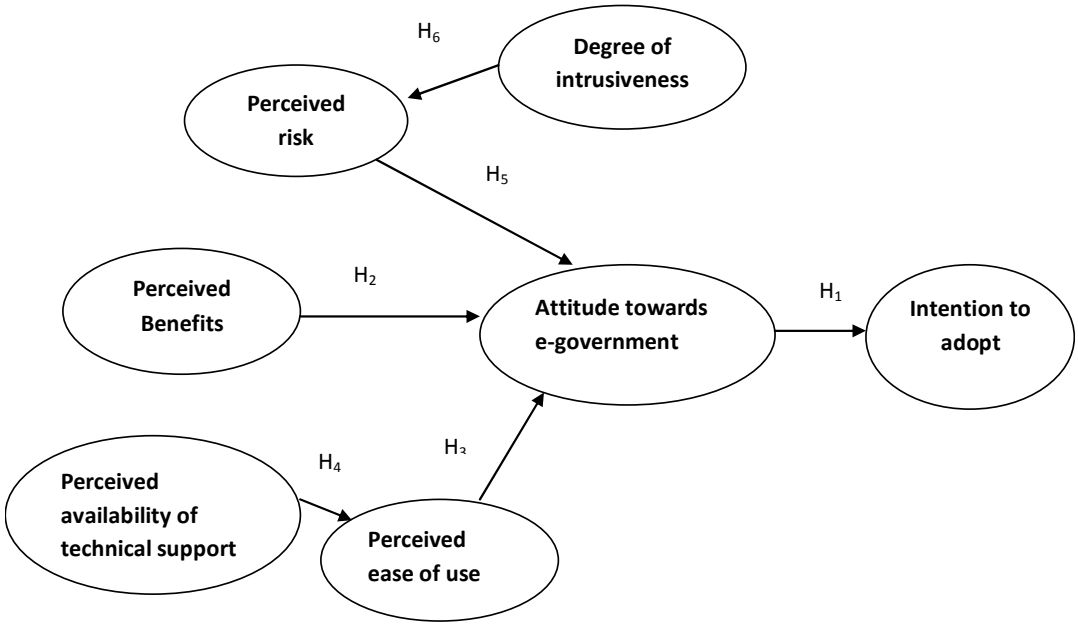


**Figure 1.** Proposed e-government adoption model.

decide to introduce e-services to their customers do so because of the benefits associated with such initiatives primarily for themselves. The researchers identified two fundamental reasons why banks introduce online banking services. These include time and costs savings associated with making services available through online channels. Kohlborn et al. (2010) observed that online channels are the cheapest delivery channels for services. They allowed organizations to be accessible to their customers 24 h 7 days a week. Al-rajehi (2007) noted that the benefits derived by business through offering services online are the forced behind most government's decisions to roll out government services using online channels. Additionally, OECD (2003) noted that there are some unique benefits associated with provision of government services using online channels. These include the fact that it helps in promoting transparency and accountability in the way government departments conduct their business, helps governments achieve specific policy outcomes by enabling stakeholders to share information and ideas and helps in building trust between governments and their citizens, an essential factor in good governance. It is however important to note that it is one thing to roll out services online and it is another to convince targeted users to adopt the new channels of accessing services. Successful implementation of e-services thus, requires that measures be put in place to encourage targeted users adopt the new service channels. While it cannot be denied that perceived usefulness and perceived ease of use are critical in influencing attitude towards e-services, it is also important to recognize that at the basic level, customers need to have access to internet for example in order to access online services. They also need to have the skills that can enable them make use of the services. Giles (2010) further noted that although technology opens up new dimensions of scope and timing, it also creates the possibility for crimes to be committed much more quickly.

## PROPOSED MODEL AND HYPOTHESIS

This paper proposes an e-government adoption model (Figure 1). The model is derived from the theoretical foundations of past research particularly the Technology Acceptance Model proposed by Davis (1989). The two main constructs in TAM as noted before are perceived usefulness and perceived ease of use which together have an influence on an individual's attitude towards technology. Eagly and Chaiken (1993) defined attitudes as a psychological tendency that is expressed by evaluating a particular entity or idea with some degree of favour or disfavour. Amstrong and Kotler (2009) observed that attitudes put people into a frame of mind for liking or disliking things, of moving towards or away from them. The study thus hypothesizes that:

$H_1$: Attitude towards e-government is positively related to intention to adopt e-government services.

The model further proposes that attitude towards e-government is a function of a number of factors including perceived benefits of e-government, perceived ease of use and perceived security risk.

**Perceived benefits:** There are many benefits that individuals can derive from using e-government services. For example, e-services are associated with high levels of convenience on the part of users as they are able to access government services from anywhere including their homes or offices, anytime of the day. They thus also help in terms of saving on time by removing the need for travelling to government offices and waiting on a queue before one can be attended to as well as saving on transport costs. Despite these benefits, Featherman and Pavlou (2003) as well as, Gilbert et al. (2004) noted that customers are sometimes reluctant to make use of online services because they prefer to deal directly with another human being. Such customers find the human interaction more assuring than interacting indirectly through technology. Members of the public thus, need to be convinced first that the use of e-government is beneficial to them before they can make use of such services. It is thus, argued in the proposed model that perceive benefits is a positively related attitude towards e-government services hence $H_2$.

$H_2$: Perceived benefits towards e-government services will have a positive effect on attitude towards e-government.

**Perceived ease of use:** Rogers (1995) noted that adoption of technology very much depends on the degree to which an innovation is perceived as relatively easy to understand and use. Technology that is perceived as easy to use is likely to get more adopters than that which is complex. The delivery system needs to be straight forward to use requiring minimum effort. It is thus, important to seriously consider technological skills of targeted users when designing e-government services so as not to put people off with un-user friendly systems. $H_3$ thus states that:

$H_3$: Perceived ease of use will have a positive effect on attitude towards e-government.

Lu et al. (2003) noted that there are some conditions external to the individual that can help users of e-services overcome hurdles to the use of new information technologies.

They referred to these as facilitating conditions. Ngai et al. (2007) identified technical support as a critical external factor in the acceptance of WebCT for higher education. They defined technical support as knowledge people assisting users of computer hardware and software products including help desks, hotlines and online support services.

Yaghoubi et al. (2011) observed that citizens perceive e-government services to be easy to use when they recognise that there are environmental conditions to help them learn how to use e-services. $H_4$ thus states that:

$H_4$: Availability of technical support has a positive effect on perceived ease of use of e-government services.

**Perceived risk:** Provision of services using the internet is often associated with high risk. Stories of criminals hacking into online sites of reputable organisations are common. Mylonakis and Malioukis (2010) noted that the benefits of using online services come with real threats of breach, intrusion and theft. Ashby (2005) found that concerns about security and privacy are significant barriers to adoption of online banking. According to Luarn and Lin (2005), perceived risk is manifested in people's concern that an organisation's system and /or system intruders will transfer their personal information to third parties without their knowledge or permission. $H_5$ thus states that:

$H_5$: Perceived risk has a negative effect on attitude towards e-government.

Since perceived risk is often associated with personal information, the proposed model further hypothesises that:

$H_6$: The level of intrusiveness of information requested by e-government service providers is positively related to level of perceived risk.

Level of intrusiveness is in this case defined as the level at which individuals regard information to be more personal, not to be easily shared with others.

## CONCLUSION

Provision of government services using electronic channels, in particular the internet, involves huge amounts of financial and non-financial investments. The majority of these services are arguably directed at citizens in general. Investments in such projects can easily be justified if targeted users actually make use of the services. In order to encourage more citizens to make use of such services, it is important for government to understand the factors that may impact on willingness to adopt or not adopt such services and come up with measures of encouraging adoption. This paper has reviewed literature on factors often associated with adoption of e-services in general and has proposed a model that can be used to help provide a good understanding of how different factors work together to influence adoption of e-government services by ordinary citizens.

According to the proposed model, attitude towards e-government is a critical factor that determines the decision to adopt or not adopt e-government. This attitude is mainly a function of three important factors namely perceived benefits, perceived ease of use and perceived risk. The model further proposes that perceived risk is a function of perceived level of intrusiveness of

information requested by e-government service providers while availability of technical support services has a positive influence on perceived ease of use.

**REFERENCES**


Al-rajehi J (2007). Critical success factors for e-government in GCC. Unpub. Doct. thesis, Uni. Salford, UK.

Armstrong G, Kotler P (2009). Marketing: An introduction. New Jersey: Pearson Prentice Hall.

Ashby Q (2005). Trading places – where now for internet banking?" ESOMAR, Available on www.esomar.org/web/publication/; Accessed on 2nd August 2011.

Davis F (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Q., 13(3): 319-340.

Eagly A, Chaiken S (1993). The psychology of attitudes. Harcourt Barce: Fort Worth.

Featherman M, Pavlou P (2003). Predicting e-services adoption: A perceived risk facets perspective. Int. J. Hum. Comput. Stud., 59:451-474.

Gilbert D, Balestrini P, Littleboy D (2004). Barriers and benefits in the adoption of e-government. Int. J. Publ. Sect. Manage., 17(4): 286-301.

Giles J (2010). The problem with online banking. New Sci., 205 (2745): 45-48

Guinea A, Markus C (2009).Why break the habit of a lifetime? Rethinking the roles of intention, habit and emotion in continuing information technology use. MIS Q., 33 (3): 443-444

http://go.worldbank.org/JIXKPRB690. Accessed 10th August 2011.

Internet World Stats (2011). World internet users and population statistics. Miniwatts Marketing Group. Available on

http://www.internetworldsats.com/stats.htm. Accessed 20 September 2011.

Kohlborn T, Poeppelbus S, Fielt A (2010). Online service delivery channels – An international comparison in the public sector. In: Proc. 21st Australas. Conf. Inf. Syst. (ACIs, 2010). 1-3 Dec. 2010. Brisbane.

Lu J, Yu C, Liu C, Yao J (2003). Technology acceptance model for wireless internet. Internet Res., 13(3): 206-222.

Luarn P, Lin H (2005). Towards understanding behavioural intention to use mobile banking. Comput. Hum. Behav., 21:871-891.

Mutula S (2008). Comparison of sub-Saharan Africa's e-government status with developed and transactional nations. Inf. Manage. Comput. Secur., 16 (3) 235-250.

Mylonakis J, Malioukis A (2010). Identifying and managing enterprise securty risks in online business convergence environments. Bus. Manage. Strat., 1 (1): 1-8.

Ngai E, Poon J, Chan Y (2007). Empirical examination of the adoption of WebCT using TAM. Comput. Educ. 48:250-267.

OECD (2003). The e-government imperative. OECD publ. Paris, France.

Polančič G, Heričko M, Rozman I (2010). An empirical examination of application frameworks success based on technology acceptance model. J. Syst. Softw., 83: 514-584.

Rogers E (1995). Diffusion of innovation. 4th Edition. Free Press: New York

United Nations (2010). E-government survey 2010. Leveraging e-government at a time of financial and economic crisis. Dept. Eco. Soc. Aff., U. N., N.Y.

Wang YS, Wang YM, Lin HH, Tang TI (2003) Determinants of useracceptance of Internet banking: An empirical study. Int. J. Serv. Ind. Manage., 14(5): 501-520.

World Bank (2010). Introduction to e-government: What is e-government. Available on

Yaghoubi N, Beiglo S, Zare R (2011). A survey on factors effecting continuity the use of government e-services. Australian J. Basic Appl. Sci., 5(8): 209-220.

Yi M, Jackson J, Park J, Probst C (2006). Understanding information technology acceptance by individual professionals: toward an integrative view. Inform. Manage., 43: 350-365.