AN EMPIRICAL INVESTIGATION OF FACTORS AFFECTING THE ADOPTION OF E-GOVERNMENT SERVICES

M MPINGANJIRA (University of Johannesburg)

Abstract: Most governments in Africa are known to have embraced the concept of e-government be it to varying degrees. This is mainly because of the potential of e-government to help improve public service delivery. Success of such initiatives however largely depends on how widely the new delivery channels are accepted by intended users. This paper investigates from the citizens' perspective factors that affect adoption of e-government services provided by mainstream government departments. The study was conducted in Gauteng, South Africa. Data was collected from a total of 380 respondents using a structured questionnaire. The results show that perceived usefulness, perceived ease of use, privacy risk concerns and attitude towards e-government are important factors that influence citizens' decisions to adopt or not adopt e-government services. The findings have wide implications on government efforts aimed at encouraging more citizens to make use of such services and these have been highlighted in the paper.

Key phrases: adoption, Africa, citizens, e-government, TAM, South Africa

1   INTRODUCTION

Improving government performance in delivery of public services is a matter that is receiving increasing attention in most African countries. This is partly due to increased demand on the part of citizens for public service provision that is responsive to their needs. In demanding more responsiveness, citizens are becoming particularly vocal of the need to reduce high levels of bureaucratic inefficiency and ineffectiveness commonly associated with government service provision on the continent (Ayee 2012:83). Though distinct, the concepts of effectiveness and efficiency in public service delivery are very much related as they both concern productivity in service delivery. Central to effectiveness is the question of whether public resources are producing the intended benefits to society. Tangen (2005:41) noted that effectiveness entails giving attention to value creation for clients. Efficiency on the other hand has to do with the manner in which resources are used to produce intended outputs or benefits (Neshkova & Guo 2009:13). It is about ensuring that time, effort and other resources are not wasted in performing tasks.

Developments in the use of information technologies, in particular the ability of government to provide services to citizens using ICTs, have been taunted by many as posing significant potential benefits in improving both effectiveness and efficiency in delivery of public services. It is for this reason that this phenomenon, commonly referred to as e-government has received wide acceptance by governments around

the world including Africa. Shareef, Kumar, Kumar and Chowdhury (2010:62) noted that the e-government revolution has the potential to reshape the public sector and remake the relationship between citizens and government.

The provision of services through e-channels, the Internet in particular, can help improve on government efficiency and effectiveness by among other things making services available to all citizens at any time of the day without the need to visit government offices; reducing costs associated with service delivery through reduction in paper-based application processes and associated data re-entry costs, as well as through making it easy for government departments to share data thereby eliminating costs associated with multiple collection and data reconciliation (Mpinganjira 2011:1561, United Nations Public Administration Network 2012:Internet).

2   RESEARCH PROBLEM

While the potential benefits of e-government in improving efficiency and effectiveness in government service delivery cannot be disputed, it is important to take cognisanse of the fact that the ability of any government to reap these benefit depends to a large extent on the willingness of citizens to make use of the available services. Furthermore, it is important to note that the implementation of e-government projects often comes at high immediate opportunity cost for most governments in Africa due to limited financial resources which are often far short of meeting even the basic needs of society. Increased adoption of such services by citizens as well as the ability of such projects to deliver on promised benefits are thus crucial in helping justify investments and associated sacrifices made. There is thus need for African governments to have in place measures aimed at encouraging wide adoption of e-government services by citizens. Such measures, among other things, need to be based on a better understanding of the factors that impact on adoption of such technologies from a citizen's perspective.

Despite this need, a review of literature on e-government in Africa shows lack of empirical studies focusing on understanding factors that impact on citizens' adoption of e-government services. Much of what is written on the topic is based on samples drawn mainly from developed countries in Europe and North America, as well as a few Asian countries notably Taiwan and South Korea. A similar observation was

made by Bolívar, Muñoz and Hernández (2010:104) in their analysis of trends in e-government research. The authors noted that despite some growth over the years, research in the area of e-government is still at 'very initial stages'.

Lee, Kim and Ahn (2011:222) observed that most research on the adoption of e-government services focuses on the supply side i.e. adoption by government departments and not on the demand side, including use of services by citizens. They also argued for the importance of understanding contextual factors in which e-government is developed and delivered in order to better understand the underlying forces that enhance or hinder e-government prospects. By studying e-government adoption using a sample of citizens drawn from Gauteng, South Africa, this study contributes to not only enhancing a better understanding of e-government prospects from an African perspective, but also from the demand perspective. The main objective of this study is thus to empirically investigate factors that influence citizens' decision to make use of e-government services. Of concern in this study are e-government services provided by mainstream government department to citizens through the online channel.

3   E-GOVERNMENT IN SOUTH AFRICA

3.1   The policy environment and services offered

In South Africa the use of electronic channels including the Internet in delivery of government services has been actively promoted since early 2000. The country's first e-government policy document launched in the year 2001 provides details of government's vision regarding the use of Information and Communication Technologies (Department of Public Administration and Governance 2001:Internet). Over the past decade significant progress has been made in ensuring availability of government services electronically. For example, currently all main stream national and provincial government departments and a majority of municipal governments have web presence which is used to provide a comprehensive array of information to members of the public. Some of the information documents that can readily be found on most government department websites include legislative information, annual reports, selected speeches by government officials, media releases, green and white papers as well as policy documents.

A Green Paper is a comprehensive discussion document prepared by government with the aim of opening up public debate on a specific policy-related discussion area. Its aim is to 'present emerging thinking on a topic and invite stakeholders and the general public to contribute their views which are then considered when a White Paper is later drafted for approval and adoption by relevant parties before it becomes official government policy' (South African Government 2012: Internet). Citizens are often given the opportunity to comment on the contents of Green Papers through scheduled public meetings in different areas or written submissions.

Apart from accessing information from mainstream government departments, citizens are also able to access a number of downloadable government forms online including application forms for identity cards, passports, marriage certificates, and government jobs. Some departments are able to offer online application services to citizens thereby making it easy for people to submit applications without the need to visit their offices. For example, the department of labour allows for citizens to register their domestic workers for Unemployment Insurance Fund online. Citizens are also able to check the status of different applications online, including application status of identity documents or passports with the Department of Home Affairs. Additionally, government websites have contact details including e-mail addresses to facilitate two-way communications between members of the public and government officials. In 2004 the government launched a single gateway point to government departments and services commonly known as the 'Batho Pele' gateway. 'Batho Pele' is a Sesotho phrase which means 'People First'. Batho Pele can be seen as a way of emphasising governments' approach of viewing citizens as 'customers' whose needs have to be prioritised.

3.2   Facilitating public access to services

The South African government has over the years looked at ways of facilitating public access to e-services. Although the country is well advanced in terms of citizens' access to Internet and mobile services in comparison to many African countries, high levels of inequality in access remains one of its big challenges. The significant gap that exists between urban and rural areas when it comes to access to ICT services in South Africa is widely acknowledged. Significant inequalities in access to Internet

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services also exist within urban areas. In order to address the problem of digital divide, the government has been rolling out ICT projects in previously underserviced areas. Of significant note are Thusong Centers which government has been establishing in previously disadvantaged urban areas as well as in rural areas to among other things, provide access to computers and the Internet free of charge to members of the public. Government has also invested a lot in efforts aimed at making sure that public schools in both rural and urban areas have computers and Internet services which learners can access.

4   USE OF E-GOVERNMENT SERVICES – A THEORETICAL PERSPECTIVE

4.1   The Technology Acceptance Model

While the South African government has invested a lot in making sure that public services are made accessible using the online channel and in providing infrastructure that can enable citizens to have easy access to e-government services, low levels of adoption from a citizens perspective continues to be a challenge facing the country. In trying to understand factors that influence adoption of e-government services this study takes cognisance of the need for empirical scholarly studies to be based on sound theoretical foundations. One widely used theoretical framework in studies on adoption of information and communication technologies in literature is the Technology Acceptance Model (TAM) proposed by Davis (1989) (Alryalat, Dwivedi & Williams 2012:2; Edmunds, Thorpe & Canole 2012:72).

According to the model, behavioural intention to adopt information and communication technologies can better be understood by analysing two important factors namely perceived usefulness and perceived ease of use. Perceived usefulness relates to benefits that one can expect to derive from the use of information and communication technologies. The model proposes that users of technology, including prospective users, consider the benefits of using new technology in comparison to their current ways of performing given tasks for which the new technology has been developed. Adoption of new technology is according to the model associated with people who feel that the use of the new technology is or will be more beneficial to their performance of given tasks compared to the current ways of doing things. Perceived ease of use on the other hand relates to the extent to which current and prospective users of new

technology feel that they can make use of the technology without the need for help from others. It is in essence about the extent to which a new system is considered to be user-friendly (Lee & Xia 2011:294).

According to the TAM model, the importance of perceived usefulness and perceived ease of use is mainly because of the role they play in influencing people's attitude towards new information and communication technologies. Attitude is thus a central construct in the model linking perceived usefulness as well as perceived ease of use with behavioural intentions as well as actual behaviour. Horcajo, Brinol and Petty (2010:939) postulate that attitudes refer to 'the general and relatively enduring evaluations people have on different kind of objects including products and ideas'. The evaluations may be positive, negative or neutral. A large body of empirical findings exists showing the close relationship that exists between attitude and behavioural intentions (Onyia & Tagg 2011:295; Ozkan & Kanat 2011:504; Wan, Cheung & Shen 2012:630). The study thus hypothesises that:

> H1:   Behavioural intention to start/continue using e-government services is positively related to citizens' attitudes towards the provision of such services.

4.2   Perceived usefulness, perceived ease of use and attitude

Empirical research focusing on the relationship between perceived usefulness as well as perceived ease of use and attitude towards the technologies, often shows inconsistent findings. Studies by Chiou and Shen (2011:867); Giovanis (2012:299) as well as Onyia and Tagg (2011:310) found a positive relationship between the constructs. Lin, Fofanah and Liang (2011:276) as well as Seyal and Pijpers (2004:207) however found no significant relationship between perceived usefulness and attitude. Al-Shafi and Weerakkody (2009:30) found no significant relationship between perceived ease of use and attitude towards adoption of e-services. Lin *et al.* (2011:276-277) argued that the relationship between attitude and perceived usefulness as well as perceived ease of use is likely to hold in cases where there is reliable infrastructure for provision of e-services.

They noted that where infrastructure results in unreliable Internet connectivity, as is the case in many developing countries, people may in general have a positive

disposition towards accessing services online, but their experience may result in their feeling frustrated and preferring the use of non-online channels to access services. Despite inconsistent findings, Alryalat *et al.* (2012:7) noted that most studies report findings that are in line with propositions of TAM. Bamoriya and Singh (2012:91) described TAM as a very robust model in helping to understand technology adoption intentions. Thus based on propositions put forward in the TAM, the study proposes that:

H2:   There is a positive relationship between perceived usefulness and attitude towards the use of e-government services.

H3:   There is positive relationship between perceived ease of use and attitude towards the use of e-government services.

4.3   Perceived risk

While it cannot be disputed that TAM helps to provide a useful theoretical foundation for studying adoption on new technologies, it is important to note that factors in the model may not prove adequate with all technologies. Of notable concern when one looks at services provided online is the issue of perceived risk. The provision of services online is noted to come at the real risk of breach of confidentiality and theft of personal information. Past studies that looked at provision of services online consistently report on privacy risk concerns that customers have when transacting online (Carter, Schaupp, Hobbs & Campbell 2012:93; Kim, Ferrin & Rao 2008:556; Whitmore & Choi 2010:1). Thus study thus considers perceived risk to be an important factor that needs to be taken into account in trying to understanding e-government adoption behaviour. It is thus hypothesised that:

H4:   There is a negative relationship between e-privacy risk concerns and attitude towards the use of e-government services.

5   METHODOLOGY

Methodologically, the study followed a mixed methods approach. This entailed the use of both qualitative and quantitative methods in collecting data. This was done in order to help enhance the validity and reliability of the findings as use of multiple approaches allows for comparison and matching of findings. The qualitative part of the study

involved collection of data using in-depth interviews from a total of 10 respondents. The respondents were selected using judgment sampling. In this case deliberate efforts were made to target people who were deemed knowledgeable on developments relating to provision of government services using electronic channels. The sample was mixed in terms of background characteristics of gender, race, education and income levels so as to understand the issues under investigation from different perspectives. An interview protocol detailing the main issues to be covered was used to guide the discussions. Each interview took an average of 30 minutes and was recorded. The recordings were later transcribed before being subjected to thematic analysis.

The quantitative part of the study involved collection of data using a structured questionnaire. The targeted respondents were ordinary members of the public, 18 years or older, living in Gauteng, South Africa. Trained field assistants were used to help with the data collection. At the end of the data collection period, a total of 380 usable responses were received. The questionnaire used in the quantitative part of the study was developed after reviewing literature on adoption of e-services as well as analysing the findings of the qualitative study. A total of five constructs as given in Table 1 below are of major interest for this paper. The constructs were measured using a five-point Likert scale which ranged from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Cronbach alpha was used to test for reliability of each construct. It should be noted that alpha coefficients of .7 and above are widely accepted as an indication that a scale is reliable (Field 2009:675). From the findings in Table 1 all the scales used in this study were found to be highly reliable. Version 18 of Statistical Package for Social Science (SPSS) was used to analyse the collected quantitative data.

TABLE 1: CONSTRUCTS USED AND RELIABILITY ANALYSIS

Construct	Number of Items used	Coefficient alpha
Attitude towards e-government	5	.927
Perceived usefulness	5	.931
Perceived ease of use	4	.909
E- privacy risk concerns	4	.907
Behavioural Intentions	3	.896

Source: Own analysis

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6   RESULTS AND DISCUSSIONS

6.1   Descriptives

Table 2 presents findings relating to perceptions and attitudes of members of the public towards e-government. The first three columns are on percentages of respondents who either strongly disagreed/disagreed, were neutral or agreed/strongly agreed with each of the statements used to measure the different constructs. According to the findings, most members of the public interviewed in the study have a positive attitude towards e-government, perceive e-government services as useful, easy to use, and intend to start/continue using it. This is evidenced by the fact that for all these four constructs the percentage of respondents agreeing or strongly agreeing with the items associated with them was larger than the percentage of those who were neutral or disagreed/strongly disagreed.

It is also important to note that the percentage of respondents who were neutral was higher than that of respondents who strongly disagreed or disagreed. This shows that only a minority of respondents held negative views about e-government in terms of attitude, perceived usefulness, perceived ease of use and behavioural intentions to start or continue using e-government services.

TABLE 2: DESCRIPTIVE STATISTICS: PERCEPTIONS AND ATTITUDES TOWARDS E-GOVERNMENT

	% SD/D	% neutral	% A/SA	Overall mean
Attitude towards e-government				3.89
- Using e-government services is a good idea	7.9	22.1	70.0	3.94
- I like the idea of using e-government services	9.2	18.2	72.6	3.96
- Using e-government services is a pleasant idea	8.7	21.3	70.0	3.88
- Using e-government services is an appealing idea	10.8	21.8	67.4	3.84
- Using e-government services is an exciting idea	12.6	20.0	67.4	3.84
Perceived Usefulness				3.87
E-government services				
- make it easier to do business with government	7.9	21.1	71.0	3.91
- enable one to do business with government more quickly	10.3	21.1	68.6	3.91
- enable one to complete transactions more conveniently	11.6	22.4	66.0	3.85
- allow one to manage business with government more efficiently	12.6	21.3	66.1	3.82
- are useful in conducting business with government	11.3	22.6	66.1	3.83
Perceives Ease of Use				3.73
I think				
- it is easy to learn how to access e-government services provided through the internet	14.2	20.8	65.0	3.75
- it is easy to use e-government websites to find what I want	14.5	25.5	60.0	3.69
- it is easy to become skilful at using Internet based e-government services	12.1	27.1	60.8	3.71

	% SD/D	% neutral	% A/SA	Overall mean
- Overall, it is easy to use e-government services provided through the Internet	10.0	28.7	61.3	3.76
E- privacy risk concerns				4.00
- I am concerned that e-government sites will collect too much information about me	12.9	17.9	69.2	3.99
- I am concerned that personal information collected through e-government services will be used for other purposes not authorised by the individuals who provided the information	15.3	15.5	69.2	3.98
- I am concerned that personal information collected through e-government sites will be shared with other government units without my authority	14.2	15.8	70.0	4.01
- I am concerned that unauthorised people may access e-government sites and get my personal information	15.0	13.4	71.6	4.02
Behavioural Intentions to use				3.83
- I intend to start/continue using e-government services provided over the internet	8.2	23.9	67.9	3.89
- I plan to use/continue using e-government services provided through the Internet to gather public information	8.9	22.9	68.2	3.82
-Interacting with government through exchange of information/data over the Internet is something I plan to do/ continue doing	10.0	24.5	65.5	3.78

Source: Own analysis

It is important to note from the results that although the majority of respondents had positive perceptions regarding perceived usefulness, ease of use and behavioural intentions, the percentage of respondents with positive perceptions regarding 'ease of use' was lower than that of the other three constructs. The range in percentage of respondents who agreed/strongly agreed with items used to measure attitude towards e-government, perceived usefulness and behavioural intentions was from 67.4 to 72.6; 66.0% to 71.0% and 65.5% to 67.9% respectively. Perceived ease of use had on the other hand 60.0% to 65.0% of the respondents agreed/strongly agreeing with the items under it.

The last column of Table 2 presents mean values for each of the items used to measure each construct as well as the overall mean for the construct. Note that the mean for the construct was calculated as a summated average of the items making up each construct. The results show that the respondents had positive attitudes towards e-government (mean = 3.89), perceived e-government to be useful (mean = 3.87), easy to use (mean value = 3.73) and had positive behavioural intentions regarding starting/continuing to make use of e-government services (mean value = 3.83). The

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results are consistent with the percentage values in that perceived ease of use had a lower average than the other three constructs.

The positive attitude towards e-government found in this study is consistent with findings reported by Ozkan and Kanat (2011:504) as well as Wan *et al.* (2012:630). These studies found that most people find the idea of making government services available through e-channels appealing, especially compared to the traditional way of providing such services namely through face-to-face interaction.

The findings in this study show that respondents found e-government to be useful as it, among other things, enables one to do business with government more quickly and efficiently as well as complete transactions more conveniently. To be specific, use of e-channels enables one to do transactions quickly and conveniently as one does not need to travel to organisational offices to access services and can often perform transactions from anywhere and at any time of the day.

Findings during the in-depth interviews also showed that respondents in general approve of government moves in South Africa and the continent at large in embracing use of technology in delivery of public services. To be specific, many commented on the fact that e-government has the potential to increase levels of transparency and accountability in government dealings with members of the public. These were noted to be issues of great concern in most African countries.

From Table 2, it is important to note that despite the majority of respondents being positive in terms of attitude, usefulness of e-government, ease of use associated with it, as well as having positive behavioural intentions, many of them were concerned about high e-privacy risks regarding use of e-government services. The mean value for this construct was 4.00 which is the highest mean value compared to all the constructs reported in Table 2.

In terms of percentage, items under this construct had 69.2% to 71.6% of the respondents agreeing or strongly agreeing with them. To be specific, respondents were concerned that government through e-services will collect too much information about them, that personal information collected through e-government services will be used for other purposes not authorised by the individuals who provided the information, that government information collected through e-government sites will be

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shared with other government units without one's authority, and that unauthorised people may access e-government sites and get one's personal information.

Provision of services using e-channels is widely considered to come at the risk of one's privacy. The source of this risk can be internal or external to the organisation. Internal risk emanates from improper use of information legitimately provided to an organisation, while external risks relate to unauthorised people getting access to information legitimately provided to another organisation.

During the in-depth interviews many respondents expressed the need for government departments to seriously investigate ways of reducing external risk in particular, as this greatly brings to question the integrity of a system and undermines public confidence. Most respondents noted that people in general tend to find it easy to trust the integrity of information systems in private businesses more than in government departments. This is mainly due to the high levels of skills often required to implement and maintain a reliable information technology system in any organisation. In most African countries, such skills tend to be in short supply and difficult for government to secure due to uncompetitive working conditions when compared to working conditions offered by the private sector.

The results in this study further show that people can still hold a positive attitude towards e-government, perceive it to be useful, as well as hold positive behavioural intention in terms of intentions to start and continue using e-government services despite having risk concerns. Kim *et al.* (2008:546) noted people are sometimes prepared to take risks when they perceive the benefits of taking such risk to be worth it. The fact that respondents in the study indicated that they perceive many benefits associated with use of e-government, which may help explain their positive behavioural intentions despite the high perceived risk.

6.2 Hypotheses testing

6.2.1 Correlation analysis

Table 3 presents results of correlation analysis conducted in order to test the different hypothesis put forward in this study. According to the results, significant positive relationship was found between attitude towards e-government and intention to make use of such services. Significant positive relationships were also found between

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perceived usefulness and attitude towards e-government, as well as between perceived ease of use and attitude towards e-government. The results provide support for hypothesis 1, 2 and 3 as put forward in the study.

These findings are in accordance with relationships proposed by Davis in his TAM model. As noted before, Davis (1989) argued that adoption of information technologies can best be explained by understanding people's attitude towards the technology and that perceived usefulness as well as perceived ease of use are important factors in trying to explain people's attitude. Regarding privacy risk concerns, this study proposed that there is a negative relationship between privacy risk concerns and attitude towards use of e-government services.

The findings according to Table 3 do not show a negative relationship between the two constructs. This supports the notion that people can have high privacy risks concerns yet still have a positive attitude towards e-services. Hypothesis 4 is thus according to the findings of this study not supported.

TABLE 3: ATTITUDE TOWARDS E-GOVERNMENT - CORRELATION ANALYSIS

		Attitude towards e-government
Perceived usefulness	Pearson correlation	.373**
	Sig (2-tailed)	.000
	N	380
Perceived ease of use	Pearson correlation	.472**
	Sig (2-tailed)	.000
	N	380
E-privacy risk concerns	Pearson correlation	.120*
	Sig (2-tailed)	.019
	N	380
Behavioural intentions	Pearson correlation	.524**
	Sig (2-tailed)	.000
	N	380

Source: Own analysis

In interpreting the results of the correlation analysis, it is also important to have a look at the correlation coefficients. In general, correlation coefficients of ±.1 denote small effect, ±.3 is considered medium effect, while ±.5 denotes a large effect (Field, 2009:173). From the findings in Table 3 it can be said that although significant relationships were found between perceived usefulness and attitude as well as

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between perceived ease of use and attitude as stipulated in TAM, the strength of the relationships was not high but rather medium.

The relationship between attitude and behavioural intention on the other hand was relatively high, while that between attitude and privacy risk concerns was very low. This results show that while attitude towards e-government can be explained by looking at perceived usefulness, perceived ease of use and privacy risks concerns there are also other factors that may help explain attitude towards e-government.

6.2.2 Regression analysis

Apart from running a correlation analysis, a regression analysis was conducted in order to determine the extent to which the three factors namely perceived usefulness, perceived ease of use and privacy risk concerns working together explains attitude towards e-government.

The results according to Table 4 show that together the three factors have low explanatory power over attitude towards e-government (R^2 = 0.262) and that the significant contributors to attitude are perceived usefulness and perceived ease of use. The regression coefficients associated with the individual factors show that perceived ease of use contributes more to explaining attitude towards e-government, followed in order by perceived usefulness and e-privacy risk concerns. This is evidenced by the standardised beta coefficient values of the three factors which are .378 for perceived ease of use, .203 for perceived usefulness and 0.064 for e-privacy risk concerns.

TABLE 4: ATTITUDE TOWARDS E-GOVERNMENT – MULTIPLE REGRESSION ANALYSIS

Model	R	R Square	Adjusted R Square	Std error of the estimate
1	.512	.262	.256	.777

Model	Independent variable	Unstandardised coefficients		Standardised coefficients	t	Sig.
		B	Standard error			
1	(Constant)	1.603	.229		6.995	.000
	Perceived usefulness	.192	.046	.203	4.129	.000
	Perceived ease of use	.359	.047	.378	7.690	.000
	E-privacy risk concerns	.052	.037	.064	1.424	.155

Source: Own analysis

The results are somewhat consistent with the correlation coefficients reported in Table 3 in that perceived ease of use had a higher correlation coefficient with attitude towards e-government, followed by perceived usefulness. The prominence of ease of use in both the correlation and regression analysis may be explained by the anxiety to use that often comes with new technologies. While it is often easy to point out benefits associated with advances in use of technology, ease of use often remains a concern with many people. Addressing this concern thus often remains a challenge that advocates of new technologies have to contend with before they can have buy-in in terms of use by large numbers of people. Furthermore, it has been noted before that when intended users of new technology are comfortable with how it works, it is unlikely for them to regard the technology as unfavourably.

The low and insignificant regression coefficient associated with privacy risk concerns further supports the observation that although most respondents have risk concerns, this does not strongly impact on their attitude. This may be due to wide acknowledgement by society of the fact that the use of e-services is in all cases associated with privacy risks. Thus, while service providers can minimise the risk, it is difficult for them to completely eliminate it. Members of the public are thus able to regard the idea of providing government services using e-channels such as the Internet favourably, despite having risk concerns.

7   RECOMMENDATIONS

The findings in this study have wide implications on government efforts aimed at encouraging mass adoption of e-government services, particularly in the African context. To begin with, it is important for government departments to capitalise on the fact that many members of the public have in general a positive attitude towards delivery of government services using the online channel. The strong relationship that often exists between attitude and behaviour means that it would be relatively easy to convince such people to take action i.e. to start or continue making use of e-government services. In order to effectively do this, government departments need to ensure that more and more people continue to hold positive attitudes towards e-government. This can be done by among other things, paying particular attention to

factors that impact on attitude including perceived usefulness and perceived ease of use in order to positively influence them.

In terms of influencing perceived usefulness, it is important for government departments to particularly ensure that citizens are informed of services available online and the benefits associated with using such a channel compared to the traditional face-to-face method. More importantly, it is vital for government departments to ensure that their online services are able to deliver on the benefits. For example, while e-services are associated with high levels of efficiency and effectiveness in dealing with government departments, its ability to deliver on this also depends on the e-service quality culture prevailing in an organisation. One common problem relating to e-service quality identified during the study was the fact that sometimes government employees take long to respond to online enquiries. If such things are not attended to, citizens can end up favouring the traditional face-to-face way of dealing with government and this can derail efforts aimed at promoting increased use of online government services.

In terms of perceived ease of use, it is important for government departments to look at factors that may have an impact on perceived ease of use of their e-services. While some studies are quick at pointing to the contribution of high illiteracy levels in most African countries to low computer efficacy as one of the biggest challenges associated with perceived ease of use, it is important for government departments to bear in mind that there are other factors that may also impact on perceived ease of use of e-government services. In particular, government officials need to bear in mind that ease of use is also very much a function of system design. In this regard, one would expect citizens to favour online sites that are easy to navigate as well as those that make use of language that users can easily understand. Thus, while government efforts to improve literacy levels in general as well as computer skills in particular are to be recommended, perceived ease of use can also be improved among those who are already computer proficient by paying attention to design issues.

When it comes to privacy risk concerns, government officials need to realise that although people may accept the fact the e-services are inherently associated with high levels of risk, they have a responsibility to ensure protection of citizens. They

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need to always be conscious of the need to be extra vigilant in protecting the privacy of members of the public. In this regard, many governments around the continent realise the importance of having laws in place that govern the use of information and communication technologies and provision of services using such technologies in particular. South Africa already has laws in place that govern such transactions. One notable Act that addresses this issue is the Electronic Communications and Transaction Act 25 of 2002. It is however important for government departments to realise the need for such laws to be publicised so that people are aware of their rights as well as of what to do when there has been an infringement.

8   CONCLUSION

As governments in Africa and around the world continue to embrace provision of services using e-channels including the Internet, it is important that they have measures aimed at encouraging more citizens to make use of such services in place. This study aimed at empirically investigating the factors that may impact on citizens' adoption of e-government services. From the findings it can be concluded that perceived usefulness, perceived ease of use, privacy risk concerns as well as attitude towards e-government are all important factors that may play a role in the decision to use or not use e-government services. Though important, the results also show that these factors are not adequate to explain large differences in attitude that respondents may have towards e-government services.

The findings point to the need for more studies aimed at empirically investigating the factors associated with the use of e-government services. As noted before, the factors investigated in this study in relation to the attitude towards e-government services in particular, were found to have limited explanatory power. Future studies need to incorporate additional factors that may help better explain people's attitude towards e-government. Future studies can also look at the possibility of including respondents from other parts of the country, specifically rural areas. Such studies would help uncover other contextual factors that may help explain use of e-government services.

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