

Harnessing e-Government Adoption in the SADC Region: a Conceptual Underpinning

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Abstract: There has recently been an escalation of e-Government initiatives in the Southern African Development Community (SADC) region, with South Africa, Mauritius, Seychelles and Botswana leading the way towards this cause. Evidence indicates e-Government implementation projects in this region either fail or succeed. Therefore it is important that before actual implementation is commissioned, there is need to understand the different challenges that come with e-Government implementations such as investment risks, failure to be adopted by the general citizenry, abandoning already-commissioned e-Government activities, and so forth. Such problems can be avoided by putting in place a properly and carefully authored e-Government adoption strategy that takes care of the local context and the multi-dimensionality of e-Government. This paper, with strong reference to Davis' 1989 Technology Acceptance Model (TAM) theoretical underpinning, proposes a conceptual e-Government adoption model that may be commensurate with promoting the growth of e-Government in the SADC region. However, the limitation of this proposed model is that it has not been empirically tested and leaves room for its further validation. The paper follows up on the status of e-Government implementation in the SADC region by presenting two case studies that detail what interventions and initiatives have been put in place to encourage e-Government in Botswana and Zambia.

Keywords: e-government; policies, adoption model, Zambia, Botswana, SADC

1. Introduction

Resource-constrained African countries have also started embracing the concept of digital and knowledge economies with a view of putting themselves at the competitive edge in the global economic value chains. This paradigm has ushered in an escalation and efficient use of e-applications (such as e-Health, e-Learning, e-Government, and so forth) in everyday lives of even marginal individuals living in economically excluded places. For the Southern African case, countries such as Mauritius, South Africa, Mozambique, Botswana and Namibia have started putting in place institutional and regulatory frameworks solely dedicated for the advancement of e-Government adoption (UN e-govt. report, 2008). At the regional level, the SADC has sought to develop policies that may be adopted and further adjusted to suit the local contexts of individual countries. Since government hierarchy goes down to community levels, it is important to draw e-Government strategies that do not leave out the poor and marginal individuals. This is very important as it has been observed that the dark side of e-Government is not cost overruns, turf battles or integration issues; it is the low adoption rates (Al-adawi, 2005).

This paper seeks to describe how e-Government has been harnessed in Botswana and Zambia for social inclusion. It looks at strategies and interventions that have been drawn to harness e-Government with tailor-made initiatives bearing strong consideration of the local context. This is important as these countries are not advanced in ICT usage in different socio-economic frameworks, therefore the provision of e-Government using basic technologies e.g. on convertible ICT platforms such as mobile phones and PDAs may be critical to e-Government adoption by the general citizenry. It describes the challenges that have been met in implementing e-Government in Botswana and Zambia. The paper identifies the different technology adoption models and the challenges that have been met in e-Government implementation programs elsewhere. Out of these endeavors, this paper recommends a conceptual e-Government adoption model that may be adopted at the SADC level once it has been empirically tested. While it is the case that a one-fit-all-size e-Government adoption strategy may not be realistic or desirable, the conceptual adoption model advocated here may identify and resolve some of the challenges and issues that are evident with the multi-level, multi-dimensional nature of e-Government. A conceptual model is strongly desired because before an implementation strategy for e-Government is drawn, it is important to meet the following conditions: a) better understand the factors influencing the adoption of e-Government systems, and b) the integration of various e-Government applications (Titah and Barki, 2006).

The paper is arranged as follows: the next section presents the background to the study, which brings out the theoretical underpinnings to the conceptual adoption model proposed in this paper. After this, case studies detailing the different initiatives that have been put in place in Botswana and Zambia are presented. Following this, a suggested conceptual e-Government adoption model is presented. Then, future trends and recommendations are given. The paper concludes by identifying the main conclusions of this work.

2. Background

The potential of e-Government for use to reduce the cost of public service delivery, encourage social inclusion, encourage participatory and inclusive governance, etc., cannot be overemphasized. In addition, e-Government can be a prerequisite to strategic initiatives avoiding rampant corruption and red-tape that characterizes most Africa's government organs and thwarts effectiveness of public service delivery systems (Bwalya, 2009).

Implementation of e-Government projects either fails or succeeds. A look at other countries that have implemented e-Government successfully prove that in such countries there have been well-authored strategies and implementation plans. Examples of countries that have taken this approach include Singapore which has an e-Government Action Plan (eGap), Tanzania and Mozambique which have put in place e-Government implementation strategies and roadmaps (Thong Tee, 2003; Menda, 2005).

The totality of e-Government adoption can be looked at as one comprising two constructs: the individual beliefs and the organizational characteristics and these can inform the adoption model that can be appropriate in any specific situation. The two most important constructs of intention to engage in e-Government are to get information from government organs and line ministries, and to engage in transactions with the government. Warkentin et al., (2002) identifies trust as the single most determining factor for people to engage in e-Government applications dealing with sensitive information such as financial (bank card details, etc) or personal information. For an African perspective, the intention to engage in e-Government is also partially influenced by the perceived benefit of using such a platform. This perceived benefit can be looked at as a return on investment (ROI) of one's time, effort, financial investment, and psychological , of engaging technology to seek a platform with the government. If the return on such basic investment is low, it is anticipated that an ordinary African will go for the traditional way of interaction with the government (Kamal and Themistocleous, 2006).

Several studies have looked at different technology adoption models as employed to infuse technology into socio-economic frameworks of different locations. Fan and Zhang (2006) specifically proposed a conceptual model for government to government (G2G) information sharing in the context of the e-Government environment. This was done in the spirit to reduce bureaucracy that may be evident in many government agencies (Titah and Barki, 2006). With this model, information sharing amongst different government branches was somewhat made easier. After reviewing several technology acceptance models such as the Davis' technology acceptance model (TAM), the Diffusion of Innovation (DOI) model, the unified theory of acceptance and use of technology (UTAUT), Fan and Zhang (2006) identified 8 common factors that have been utilized in different models such as: a) perceived benefits, b) perceived risks, c) top management support, d) IT support, e) costs, f) external pressures, g) critical mass, and h) championship. These 8 factors were accordingly incorporated into a conceptual e-Government adoption model that they proposed.

Kamal and Themistocleous (2006) have also conducted a study to ascertain technology adoption in a complex environment such as a local government authority with hierarchical bureaucratic structures with utter commitments to outmoded cultural values. Kamal and Themistocleous have identified a set of factors from literature that influence the uptake of e-Government. These are: knowledge of technology risks, IT capabilities, market knowledge on new technologies, managerial capabilities, project championships, external pressures, citizen's data privacy and security, and Return on Investments (ROI).

In their pursuit to better understand the factors that affect e-Government, Al-adawi et al (2005, P. 2), identified 4 questions they called 'critical' for the adoption and encapsulation of e-Government into the socio-economic setups. The following questions were identified and incorporated into a model for e-Government adoption: 1) How are intentions towards the use of e-government formed and to what

extent are they related to the actual use of e-government? 2) To what extent the intentions to get information and to conduct transactions differ from each other? 3) What are the beliefs that influence citizens' propensity to use e-government? How do these beliefs affect their intentions towards the use of e-government? 4) Are there any perception and adoption differences between segments of citizens on the basis of their technology readiness and demographic characteristics?

Bélanger and Carter (2008) undertook a study which analyzed the impact of trust and risk perceptions on one's willingness to use e-Government services and developed a model that include constructs supporting trust of the internet (TOI) and trust of government (TOG). Their study utilized data from a citizen survey that indicated that the disposition to trust positively affects TOI and TOG.

The different benefits of e-Government cannot be overemphasized. Choudrie and Dwivedi (2004), also quoting from UNDP (2001), state that according to the estimates that have been made, e-Government systems are already helping save approximately 2% of the annual United States Gross Domestic Product (GDP).

Several authors (e.g. Warkentin et al., 2002) have pointed out that data security, accessibility and perceived confidentiality influence individual adoption of e-Government adoption to a greater extent. The factors affecting e-Government can be divided into individual and organizational. Titah and Barki (2006) have suggested that apart from organizational factors, individual beliefs of citizens have a significant influence on the adoption of e-Government services. With strong reference to Davis' technology acceptance model of 1989, it is known that individual beliefs such as perceived usefulness (PU) and perceived ease of use (PEOU) have been considered as the dominant beliefs that affect the intention to adopt or use the technology in a business to consumer (B2C) model (Warkentin et al. 2002).

Heeks and Santos (2009; p. 3) unleashed a study where they gave some perspectives on the adoption of public sector innovations – "one that understands adoption as based on the behaviour of individual actors set within a contextual framework". Their motivation came from the fact that e-Government faces low usage rates and stated that there exists huge gaps between designers and adopters. In their study, they employed case research to study the practice-based problem of e-Government where it was thought that the experiences of the actors are important and the context of action is critical (also cited in Benbasat et al., 1987). Their study identified different factors that affect the role of the designers (as principals) and adopters (as agents).

Colesca (2009) identifies five different steps to making e-Government happen and these are: Develop a vision; conduct an e-readiness assessment; identify realistic goals; get the bureaucracy to buy-in and develop a change management strategy; and build public-private partnerships. It is thus imperative that a strategy be drawn before implementation can be initiated (e.g. strong reference to a given adoption model). It is for this reason that this paper emphasizes and draws a conceptual adoption model that can be used to encourage e-Government proliferation. In order to do that, it is desired that a conceptual and/or theoretical model be erected to act as the basis for planning the constructs of the model. For the purposes of this work, the diagram below shows the conceptual theoretical model that informs the discussion in this paper. This simplistic model may be critical for drawing a conceptual model to be used in a resource-constrained nation where the psychological state of the individual has more command to adopting a technology.

Note that this model is an extension of Davis' 1989 TAM as it starts from Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). The theoretical adoption model demonstrates that PEOU and PU are the most important ingredients that create value for the adoption of e-Government applications. This value can be split amongst three different entities and citizen's intentions to engage in e-Government: Transactions, seeking public service and getting general information. Transactions may be such applications as e-Commerce, internet banking (business-to-consumer (B2C) model) and so forth. Seeking public service may involve downloading application forms for a passport from a government website and participating in decision-making such as e-voting. Getting information involves such activities as checking recommended prices for farm products, checking weather forecasts, etc. these three different e-Government entities and applications can further lead to effective e-Government adoption. However, as the case is, there is need to incorporate further attributes so that this model becomes commensurate to the local conditions when designing an e-

Government model. For the case of SADC, the contextual environment is somewhat similar in most of the countries that belong to this regional grouping.

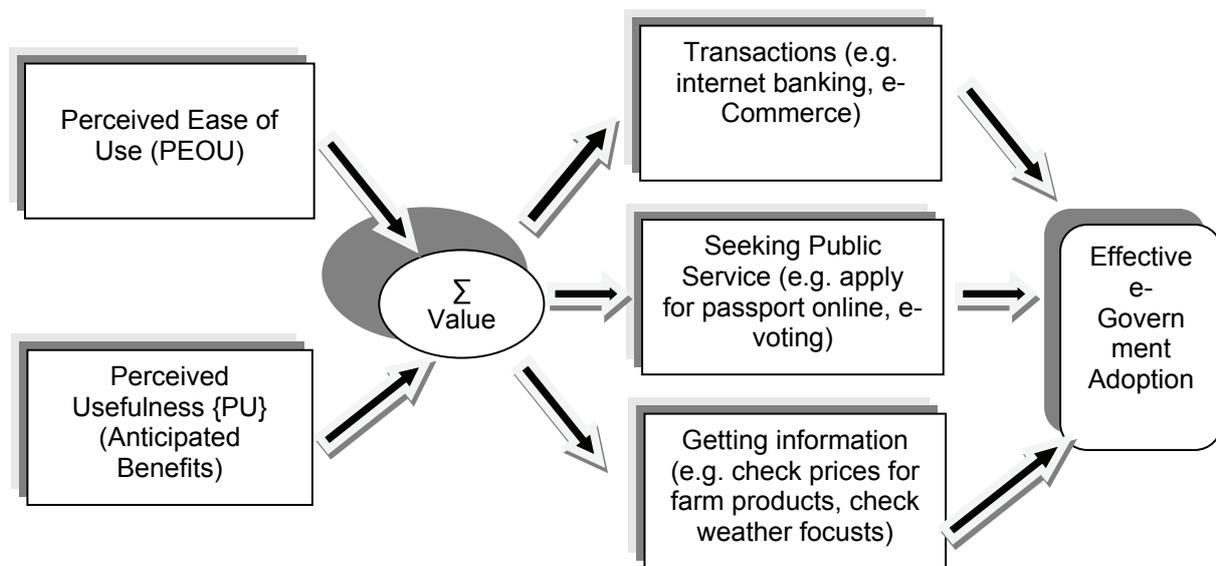


Figure 1: Theoretical e-Government adoption model (an extension of the model that appears in Al-adawi, Z., Yousafzai, S., and Pallister, J. (2005)).

The next section presents a case study that looks at the contextual environment of Botswana and Zambia and brings out interventions that have been put in place towards proliferation of the e-Government concept.

3. Case studies

a) Botswana

Botswana has a dedicated agenda towards promoting e-Government because the leaders have understood the importance of e-Government to an appreciable extent. Quoting from Mmegi Newspaper (2009, September), the potential of e-Government on improving the governance value chains in Botswana is explicitly outlined. For the case of Botswana, e-Government delivers far greater stakeholder value when it is designed within the context of a broader service delivery reform agenda. This 'whole-of-government strategy' leverages infrastructure, reduces cost and improves the on-line experience for clients. This newspaper projected that by the end of 2009, all appropriate government services will be on on-line by 2009. Has this been achieved? Although Botswana does not have a formal e-Government strategy as do Tanzania, South Africa, Mauritius it has scored positive gains on the e-Government Indexes (Bwalya, 2009). It is considered an emerging ICT-usage-powerhouse in Sub-Saharan-Africa (SSA). Recent endeavors have seen it successfully implement massive projects such as the construction of the Kgalagadi optical fibre network, full liberalizations of the telecommunications sector, putting in place sound ICT sector regulatory and institutional frameworks, dedicated ICT policy, setting up of Botswana IT hub, etc. These interventions have also been solidified with the convergence of wireless technologies which enable individuals of all statuses to use mobile technologies such as mobile phones, personal digital assistant (PDAs) etc to communicate, manage data and generally participate in the digital boom.

Gillwald & Stork (2008) has done a study where Botswana emerged as one of the countries with a higher fixed-line penetration with 11 to 18% of households having a working fixed-line phone. By the end of March 2002, there were 278 000 mobile subscribers as compared to 142 000 fixed line subscribers (Monnane. 2003). In 2007, mobile penetration had grown to 87 per 100 inhabitants and 250 000 fixed line subscribers (Lazauskaite, 2008). Compared to other countries, Botswana's mobile penetration (teledensity) has been remarkable, from nothing in 1997 to 14.24/100 inhabitants in 2002 and 76 per 100 inhabitants in 2007 (Lazauskaite, 2008), only second to South Africa in the region. In

terms of mobile lines as percentage of total lines, Botswana is behind Lesotho, South Africa and Tanzania only.

With the introduction of cheap Taiwan or Chinese phones on the local telecommunications market, acquiring a handset is no longer a far-fetched dream for Botswana citizens (Botswana). Telecom operators e.g. Mascom and Orange Botswana have started offering internet accessibility on mobile phones (Pheko, 2009). People in the rural communities can also access internet or mobile signal coverage as appropriate ICT infrastructure is now being erected even in rural areas as guided by the rural telecommunications initiative. This initiative has brought modern telecommunications, including Internet access, for the first time to 147 villages (Pheko, 2009). When fully implemented, the project will ensure that more than 50% of Botswana living in the remote areas of the country will be provided with basic telecommunications services. Further, the Botswana Telecommunications Corporation (BTC) has launched VSAT technology that, it is hoped, will play a role in bringing services to remote areas through the use of satellite and overcome limitations placed on traditional services by vast distances and difficult terrain (Mesa, 2007). It is anticipated that Botswana's telecommunication industry is likely to record growth in the year 2009 placing it ahead of the telecoms market of South Africa and Nigeria in terms of teledensity. This forecast follows the launch of BeMobile by BTC in 2008 (Pheko, 2009).

A number of significant initiatives have been introduced in the telecoms sector to encourage the growth of this sector. Lewin et al. (2004) has noted that a Convergence Bill is under preparation to update the 1996 Telecommunications Act. Debate has focused on how far this Bill can include provisions that would extend liberalization. Another initiative has been the putting in place of the Cybercrime Bill, originally published in the Government Gazette in October 2007 (Mesa, 2007). The Convergence Bill encourages further liberalizations and convergence of both wireless and fixed technologies. Pheko (2009) notes that the effect of this has been the following: a) licensing of beMobile (the BTC mobile arm); b) rollout of product packages and price offerings to attract more customers by Orange Botswana and Mascom Wireless; c) establishment of own International Voice Gateways by Mascom Wireless and Orange Botswana; d) introduction of VoIP services by PTOs and VANS; e) upgrading of Public Land Mobile networks to introduce 3G services; and f) rollout of WiMax services to some urban areas; g) increase in the number of registered VANS. (In 2008, 25 VANS were registered and total number of VANS is now 43.). It is thought that a vibrant telecommunications sector may facilitate appropriate e-Government interactions (Pheko, 2009).

Despite these novel interventions to encourage e-Government, the limitations have been lack of trust and limited education levels of a greater portion of the population (Pheko, 2009). Due to lack of effective promotional and awareness campaigns of e-Government benefits, many ordinary citizens do not find the urge to engage in e-Government. Given this scenario, it is fair to state that there is a lot of potential of e-Government in Botswana as more and more people are having access to mobile phones which can further be used as platforms for internet access. This further allows citizens, government and businesses to interact constructively using interconnected technologies.

b) Zambia

For the case of Zambia, very little has been done to encourage e-Government. Despite a poverty reduction strategy (PRS) in place, the country does not have a dedicated e-Government strategy. In fact, e-Government has only been mentioned once in Zambia's ICT policy launched in 2006 (Bwalya, 2009). Several government departments such as the Ministry of Home Affairs, Immigrations department, have tried to implement e-Government by encouraging online applications for resident/work permits; VISAs and so forth (Simenda, 2009). This however, has been met with a lot of resistance and the expected users have not given it a buy-in. This may be because strategic strategies that should have been undertaken, as outlined by Colesca (2009), have not been employed.

The 2008 e-Government Index computed by the United Nations DPEPA recognized Zambia as a country with deficient e-Government capacity because its index was way below 1.00 (0.22). although this is the case, the country has shown massive improvement from lack of online presence in 2005 to occupying 158th position of the countries surveyed in 2008 (UN e-govt. report, 2008). Although Zambia is just at the emerging stage of e-Government implementation, there are several initiatives that are in the pipeline for e-Government development. The government is about to engage a

consultant to help come up with the e-Government adoption and implementation strategy (Simenda, 2009). At an organizational level, Zambia enjoys massive support on e-Government implementation from regional groupings such as SADC and COMESA which have in place dedicated e-Government implementation action plans and roadmaps (Bwalya, 2009). The onus is on the country to adopt these different legal and regulatory framework guidelines and instruments and adapt them to the local culture.

Since access to the internet is also vital to let the different players in an e-Government environment interact, it is important that we first look at the internet (both broadband and wireless) penetration in Zambia as this gives a snapshot of e-Government adoption in general. The following table shows the number of internet subscribers (both broadband and wireless) in Zambia pitted against the levels of internet penetration in its neighbouring countries.

Table 1: Internet penetration in the Zambia and neighboring countries region (2009)

<u>AFRICA</u>	Population (2009 Est.)	Internet Users Dec/2000	Internet Users Latest Data	Penetration(% Population)	User Growth(2000-2009)	% Users in Africa
<u>Angola</u>	12,799,293	30,000	550,000	4.3 %	1,733.3 %	0.8 %
<u>Botswana</u>	1,990,876	15,000	100,000	5.0 %	566.7 %	0.2 %
<u>Malawi</u>	15,028,757	15,000	139,500	0.9 %	830.0 %	0.2 %
<u>Mozambique</u>	21,669,278	30,000	350,000	1.6 %	1,066.7 %	0.5 %
<u>Namibia</u>	2,108,665	30,000	113,500	5.4 %	278.3 %	0.2 %
<u>Tanzania</u>	41,048,532	115,000	520,000	1.3 %	352.2 %	0.8 %
<u>Zambia</u>	11,862,740	20,000	700,000	5.9 %	3,400.0 %	1.1 %
<u>Zimbabwe</u>	11,392,629	50,000	1,421,000	12.5 %	2,742.0 %	2.2 %

Source: Internet World Stats (August, 2009) - <http://www.internetworldstats.com/stats1.htm>

The information shown in the table above demonstrates that, relatively speaking, Zambia has a sizeable number of people accessing the Internet. This means, that assuming everyone who accesses internet has adopted and uses the e-Government platform in continuance patterns, the government will only reach 6% of the total population. Given these statistics, it is fair to ask whether it is logically coherent for the government and other cooperating partners to engage into massive tasks of putting in place systems, institutional and legal frameworks that will create an enabling environment for e-Government to thrive. It is also worth investing the issues of lack of trust in online applications, low ICT literacy levels, exorbitant costs of internet access, scarcity of computers, etc., and how these impact on the adoption of e-Government in the case of Zambia. It is impossible to assume that the total number of people who have internet access in Zambia all use e-Government services. In fact, less than half of 700,000 people may be even aware of e-Government in Zambia. These issues can be taken care of by drawing e-Government implementation strategies by closely following a carefully drawn conceptual adoption model. As the Zambian government's organs and line ministries have just started stamping their presence on the internet, with very few people accessing the internet and undeveloped ICT infrastructures, it can be aptly said that Zambia is at the emerging stage of e-Government implementation.

Mulozi (2008) looks at the current connectivity issues in Zambia which may contribute to the poor development and adoption of e-Government services. He mentions that Zambia's connectivity is characterized by a few major Internet providers, high dependency on VSAT access to the Internet, and a poor landline telecom system. The rural areas are most hit as most of these areas have dilapidated ICT infrastructure. Much of rural Zambia is not serviced by ground telephone and let alone fibre optic cables – the mainstay of communication – which are still being constructed. Zambia's ISP services are concentrated along the railway line from Livingstone to Chingola. The country depends on VSAT access as it is not yet connected to the international submarine cable which interconnects with the global Internet backbone. Mulozi (2008) further mentions that out of the eleven registered

Internet Service Providers (ISPs) in Zambia, six provide services to rural areas with an estimated 17,800+ clients. More than 50% of the clients use dial-up services.

A look at these websites reviews that issues of usability have not been considered to any appreciable degree during their design. Also, since Zambia has 73 different languages, providing web content only in English may be disadvantageous to some of the citizens. These web pages do not cover even half of the services that the government offers in a conventional and ordinary setup. It is vital to mention that such issues need to be followed, especially in the testing stage of the conceptual e-Government adoption model proposed in this paper.

The two cases of ICT landscape in Botswana and Zambia provide good illustration of e-Government in the region.. Since the SADC bloc has countries which have almost the same contextual environment, a look at the aforementioned countries may be somewhat representative enough for the SADC bloc. With reference to these two cases and a look at the factors identified from different literature sources, (as in the background), it is now possible to compile a list of factors that may affect domestication of e-Government in the SADC bloc. The next section describes the proposed conceptual model.

4. Proposed conceptual adoption model

Since different factors that have an effect of e-Government have been outlined, it may be fine to now define the suggested conceptual model which will be subjected to future testing and validation. This model is mainly based on Davis' 1989 TAM with extensions to so that local conditions are taken into consideration. The proposed model also uses some constructs from Wangpipatwong et al. (2008) where they discussed not only adoption, but also continuance use of e-Government. In short, our proposed model combines, primarily Wangpipatwong and Davis' e-Government adoption models, not forgetting some other critical factors identified in other empirical studies that have been implemented by other researchers.

In 1989, Davis extended the Theory of Reasoned Action (TRA) to come up with the Technology Acceptance Model (TAM) (Davis 1989). His model was based on Fishbein and Ajzen's (1975) reasoning that that user's behavioral intention is the single best predictor of actual system use. This intention is determined by two particular beliefs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Davies defines PU as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989), and PU as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). TAM also hypothesizes that PU is influenced by the PEOU.

TAM has been tested empirically in different parts of the world and it has proved that it is one of the most reliable and easy models of explain individual's intention of adoption of a technology. It has also proved to high quality especially in yielding statistically reliable results (Moon and Kim, 2001). Specifically, TAM has been used to explain user's initial intention to engage and use a technology. However, there are instances when it has been used to predict long term intention of citizens to use a technology. Studies by Venkatesh and Davis (2000), Kim and Malhotra (2005) have demonstrated, in their longitudinal studies, that PU and PEOU are one of the most important ingredients and determinants of citizen's intention to engage in a technology.

The following hypotheses, as depicted in the original Davis' 1989 TAM model, are to be taken into consideration.

H1: Perceived ease of use of e-Government websites will positively influence perceived usefulness of e-Government websites and applications.

H2: Perceived usefulness of e-Government websites will positively influence citizen's adoption of e-Government websites and applications.

H3: Perceived ease of use (usability) of e-Government websites will positively influence citizen's adoption of e-Government websites and applications.

Moon and Kim (2001) have stipulated that the TAM has to be given additional factors or incorporated with other IT acceptance models to provide an even stronger model that may be commensurate to

any given environment. These factors should take care of the local context and the multi-dimensionality of e-Government to stand any chance of success. The direct benefit of such a tailor-made model is that it can be used when drawing e-Government implementation plans. For this reason, the proposed model in this paper extends the TAM primarily by adding 'Appropriate ICT infrastructure + lower access costs' as the major infusion to the TAM. It also adds other factors that may limit the penetration of e-Government in an African setup. These factors have been identified by different authors (check background section above) as major impediments to technology diffusion in Africa and elsewhere. Lack of appropriate ICT infrastructure has been identified as one of the major impediments to technology adoption by many ordinary individual Africans.

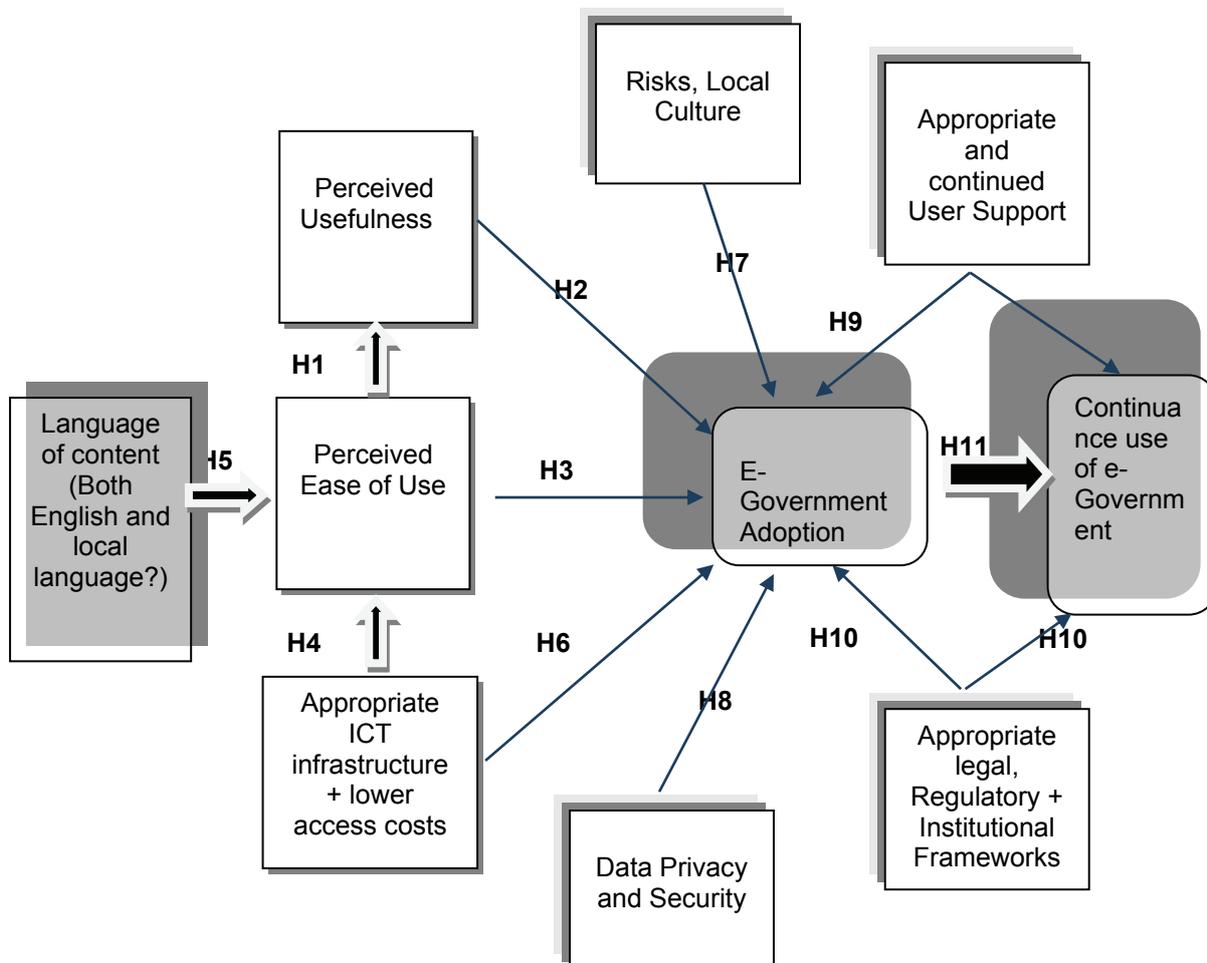


Figure 2: Proposed conceptual model of citizen's adoption of e-Government in the SADC region

In addition to the technology adoption attributes depicted in the TAM, the following extensions to the TAM have been included in the proposed model:

H4: Appropriate ICT infrastructure and lower costs to access the basic technologies impacts positively on usability and correspondingly on Perceived Ease of Use.

H5: Language of content (both English and local language) has a significant positive impact on easing the complexity of use of e-Government websites and other e-applications and therefore impacts positively on Perceived Ease of Use.

H6: Appropriate ICT infrastructure and lower access costs will have a positive impact on the overall intention to use and adopt e-Government.

H7: Perceived risks, if not controlled and local culture, may have a negative impact on the adoption of e-Government websites and applications.

H8: *Data privacy and security, if not controlled, may negatively impact on the adoption of e-Government websites and applications.*

H9: *A dedicated and appropriate user support mechanism may assure individual citizens of appropriateness of engaging in e-Government and this will positively impact on both e-Government adoption and continuance use of e-Government.*

H10: *Appropriate legal, regulatory and institutional frameworks will positively impact on motivation of ordinary citizens to engage, adopt and continue the use of e-Government.*

H11: *Appropriate e-Government adoption framework will positively impact on continuance use of e-Government.*

5. Future trends

This paper has just presented the conceptual e-Government adoption model, which in the opinion of the authors, may be commensurate to SADC contextual ICT landscape. However, this model has to be empirically tested and validated for it to be of more use and value. It is for this reason that the next phase in this research should involve the testing of the conceptualized model by using appropriate data collection instruments that are going to investigate the hypotheses presented above. The proposed model can be tested with the use of specialized statistical phenomena such as using Cronbach's alpha which is a statistical measure used to calculate reliability.

The complexity of the SADC context, such as Zambia having 73 languages, usability of web pages and platforms, appropriate public services that may be offered to an ordinary Africa through the web, and other issues in this context need to be further probed.

Future studies are also desired to examine the different antecedents of each construct to expand the explanatory power of the model. This would probably even add some more attributes to exactly conform to the local context in SADC.

6. Conclusion

This paper has looked at the different factors that inhibit e-Government growth and has sought to outline some of the influences that affect the success or failure of e-Government projects. The paper has reviewed appropriate literature concerned with the different challenges for e-Government implementation, and has looked at different adoption models that have been erected to encourage e-Government growth. In addition, the paper has reviewed the ICT landscape in Botswana and Zambia to identify what is on the ground concerning the status of e-Government in the SADC bloc.

Out of the aforementioned endeavors, the paper has proposed a conceptual e-Government adoption model that extends Davis' TAM to include other attributes and constructs that may be relevant to the local context of SADC. These other attributes have been identified from the literature reviews and the two cases presented. It is anticipated that the proposed model may be used as a guide to e-Government strategy formulation and implementation and may rightly be adopted by governments or other co-operating partners. Proposed model creates premise for future adoption of e-Government in the SADC region.

The only limitation to this model is that it has not been formally empirically tested or validated to confirm the anticipated benefits that it has to offer and its appropriateness to the SADC bloc. Thus, it is appropriate to mention that future works include empirical testing of this model. This may involve validating the different constructs presented in this model and this endeavor may probably lead to the model being modified to conform to the contextual environment of the SADC region more appropriately.

References

- Al-adawi, Z., Yousafzai, S., and Pallister, J. (2005) Conceptual Model of Citizen Adoption of E-Government: the Second International Conference on Innovations in Information Technology.
- Bélanger, F. and Carter, L. (2008) Trust and Risk in E-government Adoption, *Journal of Strategic Information Systems*, 17:2, pp. 165-176.
- Benbasat, I., Goldstein, D., & Mead, M. (1987) The case research strategy in studies of information systems, *MIS Quarterly*, vol. 11, no. 3, pp. 369-386.

- Bwalya, K.J. (2009). Factors Affecting Adoption of e-Government in Zambia. *Electronic Journal of Information Systems in Developing Countries*. Vol. 38. 4, 1-13
- Choudrie, J., and Dwivedi, Y.K. (2004) Towards a Conceptual Model of Broadband Diffusion. *Journal of Computing and Information Technology - CIT* 12(4), pp 323–338.
- Colesca S. (2009) Increasing E-trust: A solution to minimize risk in e-Government adoption. *Journal of Applied Quantitative Methods (JAQM)*. 4(1): 31-44
- Davis, F.D. (1989) Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology, *MIS Quarterly*, Vol. 13, No. 3, pp. 319–340.
- Dimitrova, D., and Chen, Y.C. (2006) Profiling the adopters of e-government information services: The Influence of psychological characteristics, civic mindedness, and information channels. *Social Science Computer Review*, 24(2), pp 172-188.
- Fan, J., and Zhang, P. (2007) A Conceptual Model for G2G Information Sharing in E-Government Environment. The Sixth Wuhan International Conference on E-Business - e-Business Track. 199-204. Conference proceedings.
- Gillwald, A., & Stork, C. (2008) Towards Evidence-based ICT Policy and Regulation: ICT access and usage in Africa. 1(2). Retrieved 9 June 2009, from www.researchictafrica.net/.../ria-policy-paper_ict-access-and-usage-2008.pdf
- Heeks, R., and Santos, R. (2009) Understanding Adoption of e-Government: Principals, Agents and Institutional Dualism. iGovernment Working Paper Series. Retrieved October 20, 2009 from <http://www.sed.manchester.ac.uk/idpm/research/publications/wp/igovernment/index.htm>
- Kamal, M.M., and Themistocleous M. (2006) A Conceptual Model for EAI Adoption in an e-Government Environment. European and Mediterranean Conference on Information Systems (EMCIS), Costa Blanca, Alicante, Spain.
- Kim, S., Malhotra, N.K. (2005) A longitudinal model of continued is use: an integrative view of four mechanisms underlying post-adoption phenomena, *Management Science*, Vol. 51 No.5, pp.741-55.
- Lazauskaite, V. (2008) Internal Gateway Liberalization, WSIS Facilitation Meeting on Action Line C6 ITU Headquarters. Retrieved 23 October 2009 from <http://www.itu.int/wsis/c2/docs/2008-May-19/mdocs/C6-session4-Lazauskaite-IGL.pdf>
- Lewin, D., Hall R., & Milne C. (2004) Further liberalization of Botswana’s telecommunications industry. Consultation document for interested parties issued by the Botswana Telecommunications Authority. Retrieved 8 August 2009 from www.bta.org.bw/pubs/Liberalisation%20Consult2.pdf
- Menda A. (2005) Successes and Challenges: E-Governance in Tanzania. Retrieved online from http://www.ftpiicd.org/ictconnect/ICT4D_Governance/EN_Governance_TA.pdf
- Mmegi Newspaper (2009) E-Government in Botswana. Available online at www.mmegi.bw
- Monnane, M. (2003) Botswana Telecommunications Services. Southern African Trade Research Network (SATRN). Working Paper No. 3
- Moon, J. W., & Kim, Y. G. (2001) Extending the TAM for a world-wide-web context. *Information & Management*, 38(4) 217-230.
- Mulozi DL. (2008) Rural access: options and challenges for connectivity and energy in Zambia, International Institute for Communication and Development (IICD thematic report. www.iicd.org/files/Zambia-Rural-Access-Report.pdf. Accessed 10 September 2009
- Pheko, T.G. (2009) Botswana Telecommunications Authority. Botswana Country Report to CRASA. Retrieved 15 August 2009 from www.crasa.org/.../reports/.../Botswana%20Report%202009%20Presentation.pdf
- Simenda, K. (2009) Electronic/Mobile Government in Africa: Progress Made and Challenges Ahead, Addis Ababa, Ethiopia, http://www.unpan.org/emgkr_africa
- Titah, R., and Barki, H. (2006) E-Government adoption and acceptance: A literature review. *International Journal of Electronic Government Research*, 2(3), pp 23-57.
- Thong Tee, C.T. (2003) Singapore’s Policy and Regulatory Update for APEC. Telecommunications and Information Working Group. Taipei. Retrieved 3 November 2009 from www.apectelwg.org/jsp/download.jsp?seq=3656&board_id...
- United Nations Report (2008) UN E-Government Survey 2008: From E-Government to Connected Governance, UN White paper. ISBN 978 -92-1-123174. Retrieved 24 October 2009 from <http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN028607.pdf>
- Venkatesh, V., & Davis, F. D. (2000) A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186-204.
- Warkentin, M., Gefen, D., Pavlou, P., and Rose, G. (2002) Encouraging citizen adoption of E-Government by building trust. *Electronic Markets*, 12(3), pp 157-162.
- Wangpipatwong, S. Chutimaskul, W. and Papisatrorn, B. (2008) Understanding Citizen’s Continuance Intention to Use e-Government Website: a Composite View of Technology Acceptance Model and Computer Self-Efficacy” *The Electronic Journal of e-Government* Volume 6 Issue 1, pp 55 - 64, available online at www.ejeg.com