A Consumer Based Model for Adoption of E-Tax Services in Uganda

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Abstract: The benefits of e-tax services are linked to its adoption and usage. E-tax adoption rates in developing countries remain low and so its benefits are not fully realized. This is because governments have focused largely on technical supply-side factors with little emphasis on the demand perspective of e-tax adoption. The result has been a gap between what is offered and what is consumed. This paper presents a model for e-tax adoption as an attempt to bridge this gap for an Uganda as a developing country. Requirements for the model elicited in a field study were used to extend the Technology Acceptance Model in order to derive one that emphasizes consumer-based factors for e-tax adoption. The extended model has dimensions of adoption benefits, trust, attitudes, education, compatibility, awareness, accessibility, training, user support and local language use. It is generic and reusable for other developing countries

Key words: E-government; E-government adoption; E-government adoption models; Consumer-based factors; Technology Acceptance Model; Transitioning country; Developing country

1. Introduction

The benefits of e-government are diverse, long lasting and include less corruption, increased transparency, better delivery of government services to citizens, greater convenience, citizen empowerment through access to information, growth of revenues, cost reductions, and more efficient government management among others. These benefits can only be reaped if the citizens adopt the e-government initiatives that are intended for them [62]. Successful e-government is at most 20% technology and at least 80% about people, processes, and organizations [28]. Despite the benefits, E-government initiatives in economically and technologically transitioning countries remain constrained by low adoption rates thereby creating a gap between what is offered and what is used. The unrealized potential of e-government is partly because governments have focused more on the supply side (government related issues) and disregarded the demand or consumers perspective [4]. The role of the demand-side factors (consumer-based) in bridging the gap between what is offered and what is used has not been emphasized, making citizens (who are part of consumers) in developing countries lag behind in adoption of e-services [41].

E-taxation is a specific implementation of e-government. E-taxation refers to trans-organizational processes with data transfer between the IT systems of the professionals and those of the tax authorities [52]. The benefits from the use of the e-tax systems are diverse including enjoying cost-free preparation and lodgment of tax returns, safety and security, all time availability and time saving, as most people can do their online tax return in a short time, and no location problems since returns can be completed on any computer[18] [31]. These benefits of e-taxation are linked to the adoption and usage of the e-tax services.
In Uganda, the Revenue Authority (URA) has boosted its tax collections by running an integrated tax administration system called e-Tax that offers 24-hour online services to taxpayers [60]. The e-tax system offers benefits both to the service provider (URA) and the consumers like the filing of tax returns in minutes compared to the old manual one that took up to two days, cost-free transaction, and less time spent on getting a Tax Identification Number (TIN) [38]. However, despite these benefits, a number of problems exist that lead to low adoption of e-tax, such as its limitation to large companies [20], system failures, little backup user support for customers, insufficient taxpayer sensitization (awareness), lack of user training, negative attitudes to the e-tax system, difficult to use, and high Internet costs [25] [53] [26] [34]. These factors have created a gap between the e-tax services offered and what is used and therefore contributed to the low adoption and use of e-tax systems. Until the gap between what is offered and what is used is bridged, the maximum potential of the services offered cannot be realized [2]. The unrealized potential of e-government (e-tax) is partly because governments have focused more on the supply side (government related issues) and disregarded the demand or consumers perspective [4].

This study therefore proposes a consumer-based model for e-government adoption (e-tax) in Uganda that will bridge the gap between services offered and services used by identifying factors that consumers that governments must address before rolling out an e-government service, thereby partly addressing the demand-side perspective. The model defines dimensions of e-tax adoption, trust, attitudes, education, compatibility, awareness, accessibility, training, user support and local language use as pre-requisites for ensuring a successful e-government adoption in Uganda. This model contributes to the extension of the existing e-government adoption models and can be applied to other developing countries.

2. E-Tax Services

E-taxation is a very specific form of E-Government that supports tax authority processes that include work flow systems and electronic record management on the one hand, knowledge management and automated risk analysis to assess the credibility of tax returns on the other hand [52]. E-tax services support on-line filing and assessment of tax returns; electronic funds transfer to enable taxes to be paid and refunds to be issued across the Internet; different government departments sharing information on tax assessments to support comprehensive policy decision making. Web-based information portals are used to educate taxpayers and researchers on taxation issues and publishing information. The overall aim of e-taxation is to replace cumbersome manual, bureaucratic service systems with collaborative, efficient, process-driven and secure online delivery [39].

The benefits from the use of the e-tax system include: i) Cost-free preparation and lodging of your tax return, ii) It is safe and secure, and is available 24 hours a day, 7 days a week, iii) It saves time by ensuring one only answers questions relevant to you and iv) the e-tax software can be used by more than one member of a household while protecting the privacy of each user. E-tax is important in the areas of as most people can do their online tax return in 15 minutes using any computer located anywhere in the world with no problems [17] [21].

2.1 E-Tax Services in Uganda

Uganda’s tax system is divided into Central Government and Local Government Tax structures. The principal taxes levied by the Central Government are income tax both on individuals and companies; Value Added Tax; Import Duty and Excise Duty, all administered by the Uganda Revenue Authority (URA). Most taxes in Uganda are charged on the basis of residential status and not on the basis of citizenship. The tax payer is
charged based upon the following factors; resident, Resident but not ordinary resident, Nonresident [23]. The Uganda Revenue Authority (URA) established in 1991 is charged with assessing and collecting tax revenue specified, enforcing the laws regarding the collection of taxes and accounting for the revenue collected to the central organization, [60]. The revenue department has boosted its tax collection by running an integrated tax administration system that offers 24-hour online services to taxpayers [38]. The system, called e-Tax allows for electronic mode of registrations, filings and payments related to tax delivery and collections. The online option was started to shorten the process of tax payment by avoiding queuing up of tax payers, and to reduce costs such as travel while filing tax returns. Presently, about 80 percent of Uganda’s domestic tax collections are made electronically.

The e-tax system offers benefits both to the service provider (URA) and the consumers. To consumers, under e-Tax and its e-filing and e-payment features, the filing process takes 10 minutes compared to the old manual one that took up to two days. Taxpayers have benefited under e-Tax, through the efficient and cost-free method of transaction it provides. It also reduced the amount of time to get a Tax Identification Number (TIN), which acts a taxpayer’s account in e-Tax used to access the URA’s online services and information. To the service provider, e-Tax aids the URA in processing Income Tax, Value Added Tax (VAT), Local Excise duty, and other fees and licenses. E-Tax mirrors the procedures under the old system but it has however enhanced the old system by putting all manual transactions online, [38].

2.2 Challenges for E-tax Adoption in Uganda

Much as the new e-tax system payment in Uganda has become easy and simple, it is still only used by the large companies [20]. The small companies and individuals not connected electronically are still finding it difficult to pay taxes. There are also inconsistencies in the working electronic systems. Much as many users appreciate the electronic systems of Uganda Revenue Authority (URA), the e-tax system remains faced with problems of: i) the online returns filing system e-tax system is prone to system failure, and has little back up support for customers [25]; ii) low Information Technology Penetration in Uganda; iii) insufficient taxpayer sensitization for the online taxation system; iv) the system is in some cases too slow and time-wasting when faced with many transactions [53], [26]; v) little user support especially during the busy dates of return filing; vii) Lack of user training on its use; vii) a negative attitude towards the e-tax system especially by the small business operators that think it is meant for big companies. These factors have contributed to the slow adoption and use of e-tax systems leaving tax payers stuck to submitting tax details manually. Taxpayers also cite issues of the system being complicated, difficult to use, lack of feedback, high Internet costs coupled with an Internet dial-up system that slows communication with URA [26] [34]. Taxpayers also cite the insistence by URA for customers to provide manually printed back up returns as a disincentive for the adoption of the online e-ax system [34].

E-tax systems are part of the effort to adopt e-government in Uganda. E-tax adoption initiatives therefore face similar constraints as the rest of the e-government adoption efforts. In Uganda, despite the various e-government initiatives, several challenges remain for ensuring implementation and adoption of e-government [35]. These are: i) inadequate IT human resource base; ii) a high level of digital marginalization (digital divide) especially in the rural areas; iii) inadequate research and development in IT to inform government's uptake of relevant applications; iv) inadequate legal and regulatory framework for the sector; v) dependency on satellite bandwidth for the provision of services leading to high costs of internet services; vi) high cost of IT equipment and software; inadequate IT
integration into government business processes leading to low utilization during the delivery of various public services; vii) lack of awareness and education; and gender differences [35] [58]. E-government has therefore not been fully realized in Uganda and there is inadequate research and development in IT to inform government's uptake of relevant applications [35]. The IT Adoption models as used in the developed countries cannot be generalized for Uganda as a developing country. The models are developed to meet the specific needs of individual countries; hence there is no one acceptable model for e-government adoption globally.

3. Literature Related to E-Services Adoption

The ICT and related e-government adoption models are helpful in explaining the acceptance and use of e-tax services. As e-tax and e-government services are mostly provided using ICTs, it is imperative that the understanding of Information Technology (IT) adoption be done [5]. Various adoption models for ICTs have been described and validated. These include the technology acceptance model (TAM) [18], the E-governance Acceptance Model (EGAM) [47], the Conceptual Model of Citizen Adoption [2], and the A Conceptual adoption model developed in the SADC region by [8].

The Technology Acceptance Model [18] has two major constructs of Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). PU is the degree to which a person believes that using a particular system would enhance his or 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 posits that users’ adoption of any new information system is determined by the users’ intention to use that system, which is in turn determined by the users’ beliefs about the system. TAM has been validated as a model for predicting systems usage behavior [15].

![Figure 1: Technology Acceptance Model[18]](image)

TAM has a number of theoretical limitations, for instance, the theoretical strength of the intention-actual use link has been questioned by [5] who observed that behavior could not be considered as a terminal goal but should be treated as a means to a more fundamental goal. The author argued that intention may not be representative enough of actual use because the time period between intention and adoption could be full of uncertainties and other factors that might influence an individual’s decision to adopt a technology. The possibility of determining behavior by adding up measures for perceived usefulness and perceived ease of use are also questioned considering that there might be differential contributions of salient beliefs. The author concludes that future research needs to focus on developing new models that would exploit the strengths of the TAM model while disregarding its weaknesses. In comparison with the consumer-based factors, TAM is found to be limited because it concentrates on two factors, PU and PEOU and does not take into account the fact that the technology can be abandoned even after it had been earlier accepted because other consumer-based factors that are important for e-government to fully succeed are ignored.
The E-governance Acceptance Model (EGAM) [47], in addition to PU and PEOU, includes perceived strength of control, top leadership involvement, policy and regulation that influence attitude towards using creating behavior intention to use and e-governance acceptance.

![Figure 2: E-governance Acceptance Model developed by [47].](image)

This model [47] considers supply-side factors but sidelines factors of trust, attitudes, benefits, education, awareness, accessibility, compatibility, local language, user support and training that are vital for successful e-government adoption.

A conceptual model of e-government adoption proposed by [32] added a new dimension of satisfaction on some of the factors identified in the other models. User characteristics (Perceived Risk, Perceived Control, Internet) and website design (Perceived Usefulness, Perceived Ease of use) are considered to have a direct influence on e-Government adoption, while service quality affects citizen satisfaction, which leads to recurring use of e-Government services and contributes to adoption.

![Figure 3- Conceptual Model of E-Government Adoption by [32]](image)

The conceptual model in figure 3 is premised on the belief that e-Government adoption is largely shaped by the extent to which the government can provide a rich, engaging, and hassle-free experience that is reliable and can provide higher levels of satisfaction. This model ignores factors like trust, attitudes, education, awareness, accessibility, training, user support that are seen as crucial for consumers in adopting e-government.

A Conceptual Model of Citizen Adoption proposed by [2] in the United Kingdom explains the intention towards the actual use of e-government website by postulating four direct determinants: perceived usefulness, perceived ease of use, trust, and perceived risk. This model agrees with TAM and EGAM on perceived usefulness and perceived ease of use, but extends it further to include trust and perceived risk in getting information and transactions which influence the individual’s behavior that impact on e-government adoption. Much as it is a conceptual model of citizen adoption of e-government, most of the
factors that directly affect these citizens (who are part of the consumers) like attitudes, awareness, accessibility, training, user support, compatibility are not considered.

A Conceptual adoption model developed in the SADC region by [8] includes factors of language of content (both English and local language), perceived risks and local culture, ICT infrastructure and lower costs, data privacy, a dedicated and appropriate user support mechanism, appropriate legal, regulatory and institutional frameworks in addition to the variables in TAM. All these factors are seen to influence e-Government adoption and continuance in the use of e-Government. However, some of the factors that affect consumers like trust, attitudes, education, awareness, accessibility, training, are sidelined. Another conceptual model of e-Government adoption with citizen trust as the underlying catalyst for adoption has also been proposed [56]. The variables in the conceptual model are perceived risk, perceived behavioral control, perceived usefulness, and perceived ease of use, power distance and uncertainty avoidance. Perceived risk is defined as “the fear of losing personal information and fear of being monitored on the Internet. If an individual had control over how personal information is going to be used, and the control of how and when information can be acquired, adoption of e-government could be possible according to this model.” The model however ignores some factors of trust, attitudes, education, awareness, accessibility, user support and training that are important for e-government adoption.

The models are here compared on the basis of various factors deemed important to consumers of e-tax services namely: trust, benefits, awareness, attitudes, accessibility, training, user support, local language, education, and compatibility are presented in Table 1.

<table>
<thead>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Adoption benefits</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Attitudes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Awareness</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Accessibility</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Training</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>User support</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Local language</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Education</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Compatibility</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

It is evident from table 1 that most of these adoption models agree with TAM model on perceived usefulness and perceived ease of use: [2] [8] [32] [47] and [56] except [46]. However, in comparison with the consumer factors identified, table 1 reveals that most of these models do not consider the consumer-based factors for e-tax services adoption. This confirms the argument that they need to be customized to suit the different contexts of individual developing countries [45]. Secondly, these models have largely been used in the developed countries and cannot easily be applied in developing countries without taking into consideration the country’s specific conditions and context.

4. A Proposed Model for E-Tax Service Adoption in Uganda

In this section, the steps used to develop a model for e-tax services adoption for Uganda are presented. Requirements for the model as elicited in a field study are used to extend the
Technology Acceptance Model in order to derive one for the Ugandan context. The following subsections therefore present the model and its synthesis from the requirements, supported by the theory of TAM.

4.1 The Methodology

A descriptive field survey using a questionnaire was undertaken to determine the requirements for the model using consumers of e-tax services in Kampala Central area. The requirements were used to develop the consumer-based e-tax services adoption model. The new consumer-based e-tax adoption model for Uganda extends the Technology Acceptance Model (TAM) developed by [18].

The target population for the field study comprised of private citizens and business persons, Employees of Government and non government organizations. Probability sampling method was used where every unit in the population had a chance of being selected in the sample using simple random sampling. This method gave equal chances to all respondents identified in the study. Interviews were used to gain information on requirements that were later confirmed by data collected using questionnaires. Out of 380 questionnaires given out to e-tax users, 292 respondents returned valid filled ones. Data collected was categorized, quantified, coded and arranged in themes with respect to the research objectives of the study.

Data was tested for questionnaire reliability and construct validity. Factor analysis was used with Principal Component Analysis as the extraction method and a Varimax Kaiser Normalization as the rotation method to get the rotated component matrix that helped to group the requirements for designing the model. The grouped requirements are summarized according to: I) cognitive factors of training, user support, awareness, accessibility and use of local language; ii) social factors of trust, benefits and attitudes; and iii) , other factors of education and compatibility.

4.2 Reliability of the Questionnaire

Reliability is the extent to which results are consistent over time. If the results of a study can be reproduced under a similar methodology, then the instrument is considered reliable [31]. Constructs in the study were examined for reliability using the Cronbach’s alpha and the results areas presented in Table 2.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s Alpha Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-government adoption benefits</td>
<td>.865</td>
</tr>
<tr>
<td>Trust</td>
<td>.853</td>
</tr>
<tr>
<td>Factors limiting use of e-tax services</td>
<td>.905</td>
</tr>
<tr>
<td>Use of e-tax services in Uganda</td>
<td>.963</td>
</tr>
<tr>
<td>Reasons for not using the e-tax services</td>
<td>.878</td>
</tr>
</tbody>
</table>

Table 2 shows that all constructs met the required level of Cronbach’s Alpha as the values were above 0.70 - the acceptable level. All values were above 0.80 and are considered very well [42]. The questionnaire can therefore be relied upon.

4.3 Validity of the Constructs

Validity determines whether the research truly measures that which it was intended to measure [40]. Factor analysis was used to examine convergent and discriminant validity.
Factor analysis is statistically used to determine the correlation among variables in a dataset and provides a structure to group variables based on strong correlations helping to detect misfit variables. Principal Component Analysis was used with Varimax Kaiser Normalization as it considers all the available variance. Convergent validity indicates the degree to which the items measuring the same construct are correlated. Discriminant validity indicates the degree to which the variables on the factors are distinct and uncorrelated. Low values indicate candidates for removal after examining the pattern matrix.

4.4 Validity on the Construct - Reasons for Not Using e-Tax Services

Respondents’ reasons for not using some of the e-tax services in Uganda were also evaluated for discriminant and convergent validity and the results are presented in Table 9.

<table>
<thead>
<tr>
<th>Reasons for not using e-tax services</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Lack of benefits in using e-tax services</td>
<td>.836</td>
</tr>
<tr>
<td>2. Lack of trust in the e-tax system</td>
<td>.827</td>
</tr>
<tr>
<td>3. Negative attitudes towards the e-tax system</td>
<td>.784</td>
</tr>
<tr>
<td>4. Lack of computer/Internet training</td>
<td>.594*</td>
</tr>
<tr>
<td>5. Unreliable power supply</td>
<td>.612</td>
</tr>
<tr>
<td>6. Limited access to a computer</td>
<td>.707</td>
</tr>
<tr>
<td>7. Limited access to the Internet</td>
<td>.784</td>
</tr>
<tr>
<td>8. Inadequate training in using the e-tax system</td>
<td>.854</td>
</tr>
<tr>
<td>9. Limited user-support from e-tax service providers</td>
<td>.837</td>
</tr>
<tr>
<td>10. Unreliable e-tax service (constant breakdown)</td>
<td>.755</td>
</tr>
<tr>
<td>11. Lack of awareness of the e-tax system</td>
<td>.741</td>
</tr>
<tr>
<td>12. Use of non-local language (English) content in the e-tax system</td>
<td>.675*</td>
</tr>
<tr>
<td>13. Difficulty in using the e-tax system</td>
<td>.681</td>
</tr>
</tbody>
</table>


Table 3 on the component factor loadings indicates that the factors loaded highly on their own factors with two components extracted. Two factors had cross loading, that is, factor 4 and factor 12 but these factors loaded higher on the constructs they measured. Discriminant validity was therefore achieved. Convergent validity on the reasons for not using the e-tax services was significant because all the factors after extraction loaded higher than 0.50. The results indicated that two factors were extracted with an Eigen value above one (1.0). All the factors loaded higher than 0.50 implying that convergent validity was desirable and therefore achieved.

4.5 Factors that Limit E-government Use

The findings presented in this section are results from the data collected through interviews and questionnaires issued to the consumers of e-tax services in the district of Kampala in Uganda. Respondents were asked about their level of agreement with each of the factors as limiting their ability to use e-tax services. In the analysis, the study evaluated factors that limit the respondents’ use of e-tax systems and impact on e-tax adoption. The findings are presented in Figure 1.
Figure 1 above reveals that 38% of the respondents agreed that lack of power supply limits them from use of e-government systems, 54% of them disagreed while 8% were not sure. 36% of the respondents agreed that lack of access to a computer limited their use of e-government systems, 50% disagreed while 14% were not sure. 52% of the respondents agreed that limited access to the internet limited their use of the e-government system, 32% disagreed while 16% were not sure. Results also show that 33% of the respondents agreed that lack of access to specific e-government system software limited their use of the e-government system, 43% disagreed while 24% were not sure. 41% of the respondents agreed that lack of general formal education limited their use of the e-government system 38% disagreed while 21% were not sure. Although 94.1% of the respondents in table 4.3 had attained different training levels from certificate, diploma, degree and post graduate, 32% of the respondents agreed that lack of training in computer skills limited their use of the e-government system, 48% disagreed while 20% were not sure.

The results indicate that 36% of the respondents agreed that use of non-local language (English) for e-government services limited their use of the e-government system, 43% disagreed while 21% were not sure. Findings further reveal that 34% of the respondents agreed that e-government systems not being compatible with their job responsibility limits their use of the e-government services, 36% disagreed while 30% were not sure. Results indicate that 36% of the respondents agreed that limited user-support by e-government service providers limited their use of the e-government systems, 38% disagreed while 26% were not sure. 35% of the respondents agreed that lack of awareness of the existing e-government services limited their use of the e-government system, 45% disagreed while 20% were not sure. Results further reveal that 39% of the respondents agreed that negative opinion/influence of others towards e-government limits their use of the e-government systems, 43% disagreed while 18% were not sure. These factors were used to develop a consumer-based e-tax adoption in Uganda since the factors contributed to limiting the respondents’ use of the e-government systems.
4.6 Contributions of the Technology Acceptance Model to the E-tax Model

The technology acceptance model [18][19] was developed in light of concerns that workers were not using ITs made available to them. It is based on the theory of reasoned action [22], a social behavioral theory useful for understanding a variety of behaviors. The reasoning was that the key to increasing use was to first increase acceptance of IT, assessed by asking individuals about their future intentions to use IT. Knowing the factors that shaped one’s intentions would allow organizations to manipulate those factors in order to promote acceptance, and thus increase IT use. TAMs main dependent constructs are the Behavioral Intention to Use and System Usage. Its major independent construct(s) are the Perceived Usefulness and Perceived Ease of Use as shown below.

TAM has been tested empirically in different parts of the world, yielding statistically reliable results and it has proved to be one of the most reliable and easy models of explaining individual’s intention of adoption of a technology [36]. TAM has been used by many researchers especially in information system to achieve a better understanding of IT adoption and its success in organizations [9][10]. TAM has proven to be a strong and robust framework to clarify adoption pattern of users [27].

4.7 A Consumer-based E-tax Adoption Model

The model proposed in figure 5 extends TAM [18] using requirements obtained from the field study. Apart from the four factors established in TAM: perceived usefulness, perceived ease of use, attitude towards using and behavioral intention to use, the new model adds three additional theoretical constructs: cognitive factors, social factors and other factors. Cognitive factors (training, user support, awareness, accessibility and use of local language), social factors (trust, benefits and attitudes) and other factors (education, compatibility).

![Original TAM model]

**Figure 5: The E-tax Adoption Model Extending TAM**

Figure 12 outlines the existing model by [18][19] and presents new features that useful for adopting e-government in the Ugandan context. Five cognitive factors influence perceived usefulness: awareness, access, training, user support, and use of local language; three social factors influence perceived usefulness: trust, benefits and attitudes while two other factors influence perceived usefulness: formal education and compatibility.

The findings point to lack of awareness as limiting e-government adoption in Uganda. Awareness is the state or ability to perceive, to feel, or to be conscious of events and objects [30]. In the early stages of implementing IT, awareness contributes to a willingness to adopt new technologies. For ordinary citizens to recognize the value of the new technology,
its potential utility must be known. If potential users are not aware of online services, they will not be able to use them [12].

Accessibility is “the degree to which web information is accessible to all human beings and automatic tools” [1]. It influences the citizen’s experience with websites and their satisfaction and adoption of new technology. Accessibility is an important method of building useful user-centered e-government services. For e-government services to be adopted in Uganda, consumers should access computers, the internet, training, user support and specific e-government service software.

Training involves identifying the e-government service training needs (needs assessment), setting objectives for the training, design the training program (means and methods to be used), identifying users who need the training, conducting the training with follow-up, observing users for signs of adoption or rejection (with feedback) and comparing training outcomes with objectives.

Language of content: use of language of content (both English and local language) eases the complexity of use of e-Government websites and other e-applications and therefore impacts positively on Perceived Ease of Use [8]. The main target should be the potential users with little or no formal education.

User support - 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 [8].

Trust- Government-citizens’ trust is an important catalyst of e-government adoption [2]. Trust is an expectation that alleviates the fear that one’s exchange partner will act opportunistically, it is a belief that others will behave in a predictable manner [56]. Citizens must have a strong trust in the security of electronic communications in order for e-government to succeed and prosper [3]. The main concern of citizens in many countries around the world is the fear that their information could be misused; therefore trust is one key element for successful e-government adoption [33]. Trust factors that need to be addressed in Uganda.

The benefits of e-government adoption are: less corruption, increased transparency, better delivery of government services to citizens, improved interactions with business and industry, greater convenience, citizen empowerment through access to information, growth of revenues, cost reductions, and more efficient government management [50].

Attitudes are constructs that represent an individual's degree of like or dislike for something. Attitudes are generally positive or negative views of a person, place, thing, or event, [48]. Some citizens may have a negative attitude towards electronic services and that they would prefer to stay with traditional methods, which for most is the paper-based way and in this case attitudes toward using government e-services represent one of the main barriers for e-government adoption [55]. The consumer negative attitudes that need to be addressed are: e-government services are prone to error, being difficult to use, confidentiality of information, issues of fraud, paper-based systems give better control over information, e-government systems do not add any benefit/value to users, men are more computer/internet literate than women.

Education is any act or experience that has a formative effect on the mind, character or physical ability of an individual. Three key elements of education should be considered for successful adoption for any technology: awareness of the internet; understanding of the internet; and workers with information technology skills [44]. The most frequent use of e-government information and services comes from populations who are experienced in using the internet as a technology. Education is one of the problems related to e-government adoption and as citizens’ education rises, their knowledge in using the internet increases [29].
Compatibility is a significant determinant in citizen’s intention to use e-Government services [9] [10]. An innovation is more likely to be adopted when it is compatible with the individual’s job responsibilities and value system [51].

4.8 Strengths, Applicability and Contribution of the Model

The proposed model in this study has important theoretical and practical implications for e-government service providers in general and consumers of e-tax services in Uganda in particular. First, the model contributes to successful e-government adoption (e-tax) in Uganda. It is generic and can therefore be applied to explain adoption of e-government services in other developing countries with similar context as Uganda. The extended TAM model can therefore be applied to other e-government services adoption areas with related characteristic e.g. e-agriculture, e-voting, e-health, e-environment and e-procurement in Uganda. For e-tax users, the model enhances adoption of e-services as it identifies and explains factors to be addressed first before a service is rolled out. The model if used can increase the adoption rates of e-tax services as demand side consumer factors are addressed. The study adds to the existing e-service and e-government literatures by focusing on the consumer-based factors for e-tax adoption for a developing country, Uganda. Through the development of the new e-government adoption model (extended TAM), this research will contribute to the existing knowledge base especially in the area of e-government adoption that focuses on consumer-based factors and addresses the demand-side perspective of e-government adoption.

[41] stated that the resulting benefits of e-government are diverse and long lasting, resulting in most of the developing countries now adopting e-government. However, the benefits of e-government adoption initiatives are constrained by low adoption rates. This research sought among other things to develop a consumer-based model for e-government adoption in Uganda and once the model is applied, it is hoped to bridge the gap between the services offered and services used thus addressing the demand-side perspective of e-government adoption, increase the adoption rates leading to enjoyment of the e-government benefits. The results will provide government departments with a new toolkit for adoption of e-government services and guide them to be more responsive to consumer-based e-government adoption factors as an option to increase the adoption rates. It will therefore be vital for the government departments to put these factors at the forefront to escape from the numerous failures that have been the predicament of these e-government adoption initiatives, help the government departments, private organisations and other individuals (citizens) deter from dissipating financial resources on e-government projects that may eventually not bring benefits because of low adoption rates.

5. Conclusions and Recommendations

Uganda is one of the countries at the bottom among the developing countries in e-government adoption and this is caused by the governments focus on supply-side factors, therefore, a model needs to be developed to address the demand-side perspective of e-government adoption. The consumer-based model presented in this study outlined the requirements for successful e-government adoption. Findings show these factors as important for e-government adoption: awareness, accessibility, training, user support, local language, trust, attitudes, benefits, education and compatibility. These requirements are added as external (independent) variables to TAMs perceived usefulness (dependent variable), [9] [10] and are used to provide an extended model for e-government adoption in Uganda. Theoretically, the model is important to the implementers of e-government services in Uganda. It is hoped that once adopted and applied in Uganda, the adoption rates
of e-government services will increase. The model is also generic and can be applied to other developing countries that have similar contexts as Uganda.

5.1 Limitations of the Study

The study had several limitations, first, the study concentrated on e-tax system and e-tax consumers thus caution needs to be taken when generalizing the findings and discussion to other e-government services and consumers. The extended TAM model leaves out some of the factors that affect consumers like subjective norms, power distance, self-efficacy among others and does not have independent variables for perceived ease of use. The requirements were collected from the urban population which leaves out the contributions from the rural settings from whom more requirements could have been identified (or a totally different set of requirements). The study also considered a limited number of consumers and did not consider aspects like culture. There is no discussion on how the consumer factors affect one another and influence adoption. Much as the extended TAM is generic and can be applied in other developing countries, there may be different local contexts and these countries may have to modify the model before applying it basing on their local contexts. More adoption models need to be studied and compared as this study compared only seven (7) adoption models.

5.2 Implementation Problems of the Extended TAM Model

Uganda is ranked number 133 out of 174 by [54] with an e-readiness index of 0.3133. This implies that Uganda performs low in terms of infrastructure and according to [54] recent research in Uganda conducted by Microsoft found that only one in every 200 citizens there are regular users of e-mail. Such conditions will severely limit the implementation of the extended TAM mode since few people have access to internet which is limited to urban areas. To successfully implement the extended TAM model in Uganda also requires acceptance/ adoption of the model by the Ministry of ICT, commitment in implementing the model which has time, resource and cost implications to the ministry and the different e-government service providers (ministries and departments).

5.3 Recommendations

This research is in progress but recommendations for future research to better understand and enhance e-government adoption and use are: The extended version of TAM needs to be modified and in developing this new model, new constructs need to be tested as independent variables to TAM and independent variables need to be identified and tested especially for perceived ease of use. Additional research is needed to test the extended TAM with different e-government services both in rural and urban settings and the results compared. Further study needs to be undertaken using a larger number of consumers and the relationship between the consumer factors need to be investigated.

References


